ANTECEDENTS AND CONSEQUENCES OF MOTIVATION: AN EXAMINATION OF MOTIVATION AS MEDIATOR TO HUMAN AND ORGANISATIONAL PERFORMANCE

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ABSTRACT

Organisational behaviour researchers studied the link between motivation factors as input variables (e. g. work environment) and employee behaviour measures as output variables (e.g. individual performance) without taking into consideration the construct of human motivation as a mediator. Moreover, the components of most definitions of motivation (activation, direction, and maintenance of behaviour) are not explicitly examined. There have been many publications concerning either work motivation or human performance in the workplace, however, there is an almost total absence of research that examines the link between the two constructs. This study attempted to increase the understanding of work motivation as a mediator to human and organisational performance, in order to provide useful insights to managers who seek to improve the performance of their organisations through their employees. As far as the researcher is concerned, this study is the first of its kind to examine human motivation as a mediator to human and organisational performance.

Based on examining 10 total quality management (TQM) frameworks, 6 human performance technology (HPT) models, 9 motivation theories, and empirical findings from the literature, the study identified and developed seven independent factors and four dependent factors that relate to human motivation and performance in the workplace. The eight independent factors, grouped into a major construct named as "Motivation and Performance Antecedents", are: Work Environment, Relations with Manager, Leadership of Top Management, Resources, Clarity of Processes, Financial Benefits, and External Perception and Identity. The four dependent factors are: Motivation, Capacity to Perform, Individual Performance, and Organisational Performance. This study empirically examined the relationships between the five constructs (Motivation and Performance Antecedents, Motivation, Capacity to Perform, Individual Performance, and Organisational Performance). A structural equation model for motivation and performance that links these five constructs was developed from the literature.

Using the structural equation modelling (SEM) approach, with the help of the AMOS 4.0 programme, the estimation of the Motivation and Performance Structural Equation Model yielded a χ^2/df ratio of 1.471, a GFI value of 0.812, a CFI value of 0.924, and an RMSEA value of 0. 047. Although the GFI ($0.812 < 0.900$) suggests that the model is moderately fitting; the χ^2/df ratio ($1.471 < 2.00$), the CFI value ($0.924 > 0.900$), and the RMSEA value ($0.047 < 0.060$) indicate a well-fitting model as all these values are well within the recommended ranges of acceptability (χ^2/df ratio ≤ 0.200, CFI ≥ 0.900, and RMSEA ≤ 0.060). Overall, this empirical study provided a strong support to the proposed Motivation and Performance model and pertinent hypotheses.

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ABBREVIATIONS

χ^2	Chi-square
AGFI	Adjusted GFI
AMOS	Analysis of Moment Structures
ASTD	The American Society for Training and Development
BTI	Bahrain Training Institute
CFA	Confirmatory Factor Analysis
CFI	Comparative fit index
CR	Critical Ratio
df	Degrees of freedom
GFI	Goodness-of-fit
HPT	Human Performance Technology
HRD	Human Resource Development
HRM	Human Resource Management
ISPI	The International Society for Performance Improvement
IT	Information Technology
NC=χ^2/df	Normed Chi-square
NFI	Normed fit index
OD	Organisational Development
p	Probability value
PCFI	Parsimony comparative fit index
PCLOSE	Probability of close fit
PGFI	Parsimony goodness-of-fit index
PNFI	Parsimony normed fit index
PWE	Perceived Work Environment
RMR	Root-mean-square residual
RMSEA	Root-mean-square error of approximation
SEM	Structural Equation Modelling
SPSS	Statistical Products and Service Solutions
TLI	Tuckler-Lewis index
TQ	Total Quality
TQM	Total Quality Management

CHAPTER 1 INTRODUCTION

1.1 Background

Today's business environment is characterised by unprecedented rapid change, unpredictable and random events in the external environment, and increasing demands for improved productivity at reasonable price. This has caused organisations to rethink their position in such business environments in order to remain competitive.

For organisations to sustain their position in today's competing and challenging business environment, they should produce quality outcomes (products or services) that satisfy their customers at a price they can pay (Deming, 1986, p. 169). Any organisation has to produce its outcomes through its people. For organisations to produce quality outcomes, they must excel in quality performance. Therefore, the key to quality performance is the organisation's ability to motivate its people towards desired actions and behaviours and increase their level of quality consciousness. In order to do this, managers need to identify the key factors that drive human motivation and performance in their organisations and utilise these factors in a manner that improves the motivation of their employees, which in turn improves their task performance in the workplace. As a result of this, the performance of the organisation as a whole will improve.

There is a number of different but closely associated fields of management that aim, directly or indirectly, at the improvement of human motivation and performance in the workplace. That is normal because people in any organisation represent the most complicated resource, which is influenced by numerous different factors. Three management fields that emphasise on the improvement

of human motivation and performance in the workplace are total quality management (TQM), human performance technology (HPT), and work motivation. Since these management fields focus on people, they are expected to be multidisciplinary fields. For example, the field of Human Performance Technology (HPT) emerges from a number of disciplines that include Communications Theory, Educational Psychology, Human Resource Development (HRD), Human Resource Management (HRM), Instructional Psychology, Information Technology, Instructional Systems Design and Technology, Industrial Psychology, Learning Theory, Management Theory, Occupational Education and Development, Systems Theory, Organisational Learning, Sociological Theory, and Organisational Design and Development (Rosenberg *et al.*, 1992; Dean and Ripely, 1997; Stolovitch and Keeps, 1999). A brief overview of each of the three fields (TQM, HPT, and work motivation) is presented here.

This study examines the issue of motivation by first providing a critical review of this complex field, by delving into the different disciplinary perspectives, which range from psychology to economics. We show that each of these fields has improved the understanding of the motivation conceptualisation, yet each of these on its own fails to provide a full and clear view of motivation, such that it allows pragmatic actions to be taken by managers. We synthesise the literature, and based on this we integrate the various hitherto disparate strands of thought into a model of motivation and performance, which helps to direct us to precise management actions to create quality conscious actions and behaviour. It is our belief that only through a better understanding of what motivates people, can this most valuable of organisational assets be most effectively leveraged for success in organisations.

1.1.1 Total Quality Management (TQM)

Total Quality Management (TQM) has evolved over the last five decades. After the Second World War, in the early 1950s, Deming, Juran, and Feigenbaum took messages of quality to the Japanese. From the late 1950s onwards Ishikawa and Taguchi took the response of quality in Japan. Crosby concentrated on Quality Awareness from the 1970s onwards (Gehani, 1993).

The management philosophy of quality has matured; evolving from its early phase of inspection, statistical process control, quality assurance to what is now commonly termed as total quality management (TQM). Over its evolution, the emphasis upon people has increased. Whereas in the early phases the hard tools and techniques of inspection were prevalent, later conceptions brought forward the centrality of people in quality management's success (Park 1999; Kondo, 1999). These shifts were accompanied by high emphasis on teams, a central component of TQM, and empowerment (the responsibility, along with authority, to take action) for improvement actions. TQM guru Deming in his later thinking made a strong call for "bringing joy to the workplace" (Deming, 1986). This according to Deming was the newest and biggest challenge facing the organisational success.

To tackle this challenge effectively, it is necessary to scrutinise carefully what motivates people. Whilst the notion of people is central in TQM programmes, quality management unfortunately has little to say about how to motivate people towards desired actions and behaviours (Wood and Peccei, 1995). This is conceptualised as quality consciousness. Unfortunately, the area of motivation and quality consciousness continues to receive scant attention (Ambrose and Kulik, 1999). One notable exception has been Yoshio Kondo, who has highlighted the need to give attention to this neglected area (Kondo, 1996, 1997, and 2000).

For the purpose of this study and in order to identify the fundamental factors of Total Quality that drive human motivation and performance in the workplace, the ideas of the quality gurus - Deming, Crosby and Juran, in addition to recent thoughts of some writers in the field will be reviewed in detail in chapter 2.

1.1.2 Human Performance Technology (HPT)

The concept of performance improvement is not a new one. It has been variously known as performance engineering, performance consulting, human performance improvement (HPI), performance technology, and lately as human performance technology (HPT). HPT refers to the collection of techniques, procedures, and approaches that intend to solve human performance problems and improve human performance in the workplace. The choice of appropriate HPT interventions (solutions) to be applied depends on the type of human performance problem encountered in the workplace (Stolovitch and Keeps, 1999).

Stolovitch and Keeps (1999) note that there is no single definition that is universally agreed upon for HPT. However, an agreement on the critical attributes of HPT appears to have formed: HPT *is systematic*, HPT *is systemic*, HPT *is grounded in scientifically derived theories and the best empirical evidence available*, HPT *is open to all means, methods, and media*, and HPT *is focused on achievements that human performers and the system value*. To cite one definition, HPT is defined as "a systemic and systematic approach to identifying the barriers that prevent people from achieving top performance that contributes to the success of an organisation. We then create solutions that quickly and effectively remove those barriers so that people can improve their performance and achieve their full potential" (Fuller and Farrington, 1999, p. 14).

HPT is a field that focuses on providing solutions to organisational problems, and therefore, has a lot to share with TQM, however, it is neglected by the TQM literature. A system approach is taken in which the person within the system is seen to be an important element who is affected by the system and consequently affects and influences the performance of the organisation he/she works for. So, system factors, including environmental and cultural factors, are seen to be important sources of variance that affect human performance both directly and indirectly.

Many writers have come up with different models with regard to human performance improvement within the organisation. Models developed by HPT's key proponents include Gilbert's behaviour engineering model (Gilbert, 1978), Brethower's total performance system model (Brethower, 1982), Harless' performance improvement process model (Harless, 1990), Kaufman's strategic planning model (Kaufman, 1992), and Rummler's three levels model (Rummler and Brache, 1990). The concept of HPT field and the models developed by HPT pioneers will be discussed in detail in chapter 2.

1.1.3 Work Motivation

Without much doubt motivation is one of the most difficult pieces in the management puzzle. Increasingly, we are coming to realise the importance of motivation in the workplace. Motivation is the "the degree to which ... the employee experiences positive internal feelings when working effectively on the job" (Hackman and Oldman, 1975, p. 162; emphasis in the original). Motivation is increasingly becoming the subject of interest. Writers such as Green (2000) and Thomas (2000) have brought the subject back to the forefront by presenting belief system models, which deal with aspects of extrinsic and intrinsic

motivation, respectively. Green (2000) elaborates on how people respond to extrinsic rewards, while Thomas's (2000) model focuses specifically on intrinsic rewards (based on internal feelings).

Theories of motivation are classified into two categories: content and process theories (Gibson *et al.* 1991). Content theories are those that focus on **what** factors within the individual energise, direct, sustain, or stop behaviour. They include Maslow's need hierarchy theory, Alderfer's ERG theory, Herzberg's two-factor theory, and McCelland's socially acquired needs theory. Process theories are those that describe, explain, and analyse **how** to energise, direct, sustain, or stop behaviour. They include Skinner's reinforcement theory, Vroom's expectancy theory, Adams' equity theory, and Locke's goal setting theory. The field of work motivation and motivation theories will be discussed in detail in chapter 2.

1.2 Statement of the Problem and Research Questions

Although a number of fields have addressed individual and organisational performance, the focus of intervention has been different. For example, the field of human resource management (HRM) tends to focus on individual-level interventions; the field of total quality management (TQM) tends to focus on process-level interventions; and the field of organisational development (OD) tends to focus on organisation-level interventions. Whilst these fields tend to focus on different levels of interventions, their perspectives are related. This calls for the need to conduct research on investigating opportunities for integrating these fields, and especially to identify the fundamental factors for implementing effective integrated solutions.

Human Resource Management (HRM) professionals aim to meet organisations' needs in terms of human resources functions such as personnel selection, performance appraisals, and training needs analysis; and to respond to employees' needs such as competitive salary scales, monetary and non-monetary incentives, compensation, and pension plans (Stolovitch and Keeps, 1999). HRM researchers, for a long time, have focused on individual differences based on the assumption that individuals alone matter in determining organisational performance (Waldman, 1994). Due to the fact that individuals within the organisation are affected by different aspects of the organisation's systems, TQM proponents have emphasised systems' aspects as affecting performance (Deming, 1986; Juran, 1989). However, the literature on TQM has been criticised to be more concerned with process rather than content (Reed *et al.*, 1996). Furthermore, other writers have questioned TQM's ideological basis, conceptual soundness, and its applicability (e.g. Hill, 1995; Dean and Bowen, 1994; Wilkinson *et al.*, 1991). Some authors have made some attempts to address these issues and come up with frameworks that connect both person and system factors aiming towards a theory of work performance (Reed *et al.*, 1996; Dean and Bowen, 1994; Spencer, 1994; Waldman, 1994; Anderson *et al.*, 1994).

Ambrose and Kulik (1999), in their review of the 1990s motivation literature, concluded that organisational behaviour researchers extensively used traditional motivational theories without using the central construct of "motivation". They identified this as a paradox, i.e., "how were organisational behaviour researchers writing empirical articles using motivational theories without using the central construct of motivation?" In their review of the literature, they identified the source of this paradox and attributed it to organisational behaviour researchers replacing the concept of "motivation" with specific measures of employee behaviour such as *individual performance*. That is, organisational behaviour researchers studied the link between motivation factors as input variables (e. g.

work environment) and employee behaviour measures as output variables (e.g. individual performance) without taking into consideration the construct of human motivation as a mediator. "Established motivational theories were an effective framework for predicting these behaviours when researchers did not explicitly measure "motivation", or even suggest "motivation" as an explanatory mediating construct". This is referred to as "loose application of traditional motivation theories" (Ambrose and Kulik, 1999).

Ambrose and Kulik (1999) mention:

> *Research during the 1990s appeared determined to skirt the biggest difficulties associated with motivational research: defining motivation and measuring the mediating effects of motivation. While there are some notable exceptions (e.g., Weingart, 1992), we were disappointed to observe that there was little empirical research directly examining how employee motivation influences subsequent task performance. We are concerned that many research areas are measuring either motivation, or outcome variables such as performance, without studying the link between these constructs. Most definitions of motivation include a focus on three components: activation, direction, and maintenance of behaviour (e.g., Katzell & Thompson, 1990). Only one study (Blau, 1993) explicitly examined these components. ...As greater and greater emphasis is placed on objective measures of employee performance in organizational research, motivation is moving backstage as a largely unmeasured, but still theoretically relevant, mediating variable. If our goal is understanding employee behaviour, as well as predicting employee behaviour, we cannot neglect measuring important mediating variables that capture the essence of "motivation". However, deciding how to meaningfully measure "motivation" is a considerable challenge in today's organizations.*

So, organisational behaviour research has used traditional motivational theories as general frameworks to study specific measures of employee behaviours (e.g., task performance, organisational citizenship behaviour, creativity) and organisational contexts (e.g., work teams, international contexts) without explicitly measuring "motivation". This has been found to be useful and effective as employee behaviours and organisational contexts were not explicitly addressed in the traditional motivational literature, however, the "loose" application of the traditional motivation theories ignores the influence of employee motivation on

subsequent task performance. The concern is that researchers are measuring either motivation, or outcome variables such as performance, without studying the link between these constructs. Another concern is that the components of most definitions of motivation (activation, direction, and maintenance of behaviour) are not explicitly examined (Ambrose and Kulik, 1999).

The aim of this research study is to focus on a number of questions, which are articulated as follows:

1. What are the fundamental motivation and performance factors within an organisation?

2. What are the antecedents and consequences of employee motivation?

3. What are the constructs of each fundamental motivation and performance factor that drive the human motivation and performance in the workplace?

4. What relationship is there among the fundamental motivation and performance factors, employee motivation, individual performance, and organisational performance?

5. How do organisations become performance improvement oriented?

In an attempt to answer the above questions, the research will aim to provide a conceptual framework that examines the relationship between the fundamental motivation and performance factors, employee motivation, individual performance, and organisational performance. The fundamental motivation and performance factors will be identified based on extensive review of the literature on (1) Total Quality Management (TQM), (2) Human Performance Technology

(HPT), and (3) Work Motivation, and then the relationships are tested using structural equation modelling (SEM).

1.3 Objectives of the Study

The research questions articulated in the previous section can be answered by translating them into research objectives that can be achieved using appropriate research methodologies and methods. The research aims, mainly, to provide an overview of why and how organisations can motivate their employees and improve their performance by incorporating the elements of human performance improvement approaches. This main objective is met by:

1. Providing an in-depth study and literature review of Total Quality Management (TQM).
    i. Explaining the evolution of TQM.
    ii. Exploring different views and critiques of TQM.
    iii. Exploring the deficiencies and limitations of TQM.
    iv. Identifying the human elements of TQM.

2. Providing an in-depth study and literature review of Human Performance Technology (HPT).
    i. Explaining the evolution of HPT.
    ii. Exploring performance improvement models developed by some of HPT's key proponents.
    iii. Explaining how performance measurement can be utilised to improve organisational performance.

3. Providing a critical review of the Work Motivation field.
    i. Explaining and discussing the traditional theories of motivation.

ii. Highlighting recent thoughts in the motivation literature.

iii. Synthesising different motivation factors from different theories.

4. Identifying and synthesising the key elements/factors that relate antecedents of motivation and performance to human and organisational performance through the mediation of human motivation.

   i. Identifying the key elements that act as antecedents and consequences of human motivation and performance, based on literature from TQM, HPT and work motivation.

   ii. Characterising the identified antecedents and consequences of human motivation and performance using TQM frameworks, HPT models, and motivation theories.

   iii. Explaining how the antecedents of human motivation and performance influence human performance and organisational performance through the mediation of human motivation.

5. Developing a conceptual motivation and performance model based on the literature review.

   i. Identifying fundamental motivation and performance factors that drive human motivation and performance in the organisation.

   ii. Identifying how these factors relate to employee motivation, individual performance, and organisational performance in a causal framework presentation.

   iii. Explaining how the framework should be implemented.

6. Developing a structured questionnaire (measuring instrument) to measure motivation and performance factors, employee motivation, capacity to perform, individual performance, and organisational performance.

i. Developing items for each latent construct in the conceptual model.
ii. Assessing the validity and reliability of the measuring instrument.
iii. Applying confirmatory factor analysis (CFA) to the latent constructs of the conceptual model using the questionnaire items.

7. Fitting the theoretical model to empirical data in order to permit statistical inferences from the hypotheses.
   i. Identifying a good fitting model using structural equation modelling (SEM).
   ii. Testing the developed hypotheses.
   iii. Discussing the hypotheses and their implications.

1.4 Significance of the Study

At this moment in time very little or no research has been conducted that incorporates the ideas and theories of Total Quality Management (TQM) and those of Human Performance Technology (HPT). This study represents an important start in bringing the two fields together. This study will be important to professionals in the fields of training, performance improvement, quality improvement and HRD. It will also be important for professional societies such as, the American Society for Training and Development (ASTD) and the International Society for Performance Improvement (ISPI) as the membership of these societies is comprised of professionals in the performance improvement related fields. The study is highly important to both academics and practitioners alike. It is important to academics since it integrates together a number of academic fields, which appear to have been examined in isolation. Both the academics and practitioners will have the opportunity to know the opinions of each other about what drives human performance in the working place.

The research represents an exploratory and explanatory study that will:

1. Provide the reader of this study with a greater understanding of the field of motivation and its positive impact on human and organisational performance.

2. Show the human resource development personnel how they move from training orientation to performance improvement orientation through human motivation.

3. Provide organisations with an understanding of how human motivation influences individual and organisational performance.

4. Provide organisations with an understanding of the factors that lead to human motivation and performance.

1.5 Research Methodology

The research methodology of this study includes three major steps:

a) Development of a conceptual framework and hypotheses based on literature review and synthesis of theories and frameworks.
b) Development of a structured questionnaire and data collection.
c) Data analysis and interpretation.

In the first step, a comprehensive literature review of total quality management (TQM), human performance technology (HPT) and work motivation is conducted. Gaps within each of these approaches are identified through a critique of extant literature and a composite model of motivation and

performance is developed. A number of hypotheses are proposed as a result of this review.

The next stage of the research methodology adopted a survey design in order to examine the developed model for validity and test the proposed hypotheses. This step of the research process involved the use of a structured questionnaire as a data collection method. The structured questionnaire was developed on the basis of the theoretical constructs of the developed framework and hypotheses in line with the research questions. Data were collected as a result of distributing the questionnaire to almost all employees of one organisation.

In the third phase, the structural equation modelling (SEM) approach was used to analyse the data collected and test the proposed model and hypotheses. The Statistical Products and Service Solutions (SPSS) and Analysis of Moment Structures (AMOS) programmes were used to analyse the data.

1.6 Organisation of the Thesis

The thesis is structured and presented in eight chapters (see figure 1.1) that are described as follows:

Chapter 1 provides a general overview of the study. First it describes, in brief, the three fields of management: total quality management (TQM), human performance technology (HPT), and work motivation. Then, it articulates the research problem, research questions, and research objectives. It also highlights the significance of the study and some implications. Finally, the research process and methodology are described briefly.

Chapter 2 reviews the literature related to the three areas: total quality management (TQM), human performance technology (HPT), and work motivation. It describes and discusses the early and recent thoughts in these fields, based on the writings of the proponents of the fields. Based on extensive literature on TQM, HPT, and work motivation, key elements that relate to human motivation and performance were identified and synthesised. The chapter aims to lay a theoretical foundation for the study and development of a conceptual framework of motivation and performance.

Chapter 3, based on the literature reviewed in chapter 2, develops and operationalises many factors that influence employee motivation, individual performance, and organisational performance; and develop a conceptual framework for motivation and performance. Ten hypotheses are developed in this chapter for testing and analysis.

Chapter 4 describes the research methodology employed by the study. It first describes and discusses quantitative and qualitative research methodologies and pertinent research issues involved in social science studies. It then describes the methodology and methods employed in this study to select the population and sample, develop and validate the data collection instrument, and collect and analyse the data. Construct items are developed in this chapter. The construct items are used to collect data for each of the constructs through a questionnaire survey methodology. The structural equation modelling (SEM) approach, employed by this study, is described in this chapter. Some methodological issues concerning instrument validity, constructs' reliability, and model fit are also discussed here. Pertinent descriptive statistics of the study are also described here.

Chapter 5 analyses the constructs (measurement models) of the proposed structural equation model of motivation and performance using a confirmatory factor analysis (CFA) approach. AMOS 4.0 is used to analyse both the measurement models and the structural equation model. The purpose of this chapter is to develop measurement models that can then be used to enable analysis of the structural equation model. In other words, it aims to ensure that the derived constructs used in the structural equation model are both valid and reliable. There are five measurement models that are checked for subsequent testing in the structural equation model: Motivation and Performance Antecedents, Motivation, Capacity to Perform, Individual Performance, and Organisational Performance.

Chapter 6 test and analyses the proposed structural equation model of motivation and performance and pertinent hypotheses. The hypotheses tested probe the causal links among the variables Motivation and Performance Antecedents, Motivation, Capacity to Perform, Individual Performance, and Organisational Performance. Both the direct effects and indirect effects in the structural equation model are discussed.

Chapter 7 discusses the developed model in detail. It discusses the research findings and hypotheses and explains how they support or contradict the literature. The strengths of the model are explained.

Finally, chapter 8 presents some implications and conclusions emanating from the study. First, it discusses implications for practice and research. Second, it highlights some limitations of the study. Third, it summarises the contribution of the study to the field of motivation and performance. Fourth, it suggests some recommendations for future research. At the end, it provides a brief summary of the study.

References used for the study and appendices relating to the study are presented at the end of the thesis.

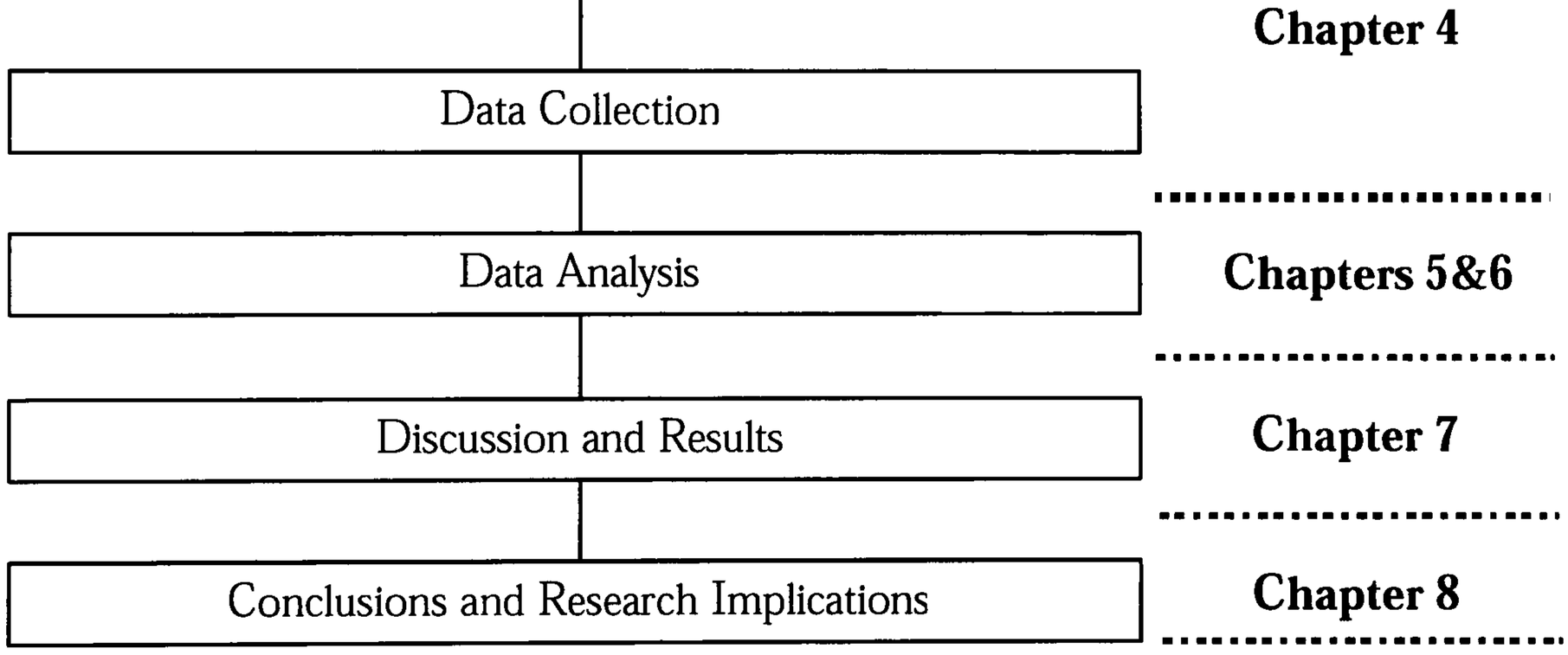

Figure 1.1 The Research Process

1.7 Summary

In this chapter, a general overview of the study is presented. It started with providing a clear background about the three fields of management that relate to human motivation and performance in the workplace. These fields are total

quality management (TQM), human performance technology (HPT), and work motivation. These three fields, whilst distinct, share a common strand with regard to human motivation and performance. Second, the research problem is briefly introduced and transformed into key research questions. The research questions were then transferred into research objectives to allow the conduct of research using appropriate methodologies and methods. The research problem focuses on the link among motivation and performance factors, employee motivation, individual performance, and organisational performance. Third, the research methodology to be applied to the research problem and questions is explained.

CHAPTER 2 LITERATURE REVIEW

2.1 Introduction

This chapter reviews the literature related to the area of work motivation with respect to human and organisational performance improvement in detail. It highlights the three main areas: Total Quality Management (TQM), Human Performance Technology (HPT), and Work Motivation, which provide the theoretical and practical foundations of human motivation, human performance and organisational performance. The purpose of the literature review is to critically examine these foundations and to use them as a guide to develop an integrated conceptual framework for work motivation and human performance improvement that can be generally applied by organisations to analyse their performance problems.

The Total Quality Management section defines quality and total quality from the views of the major thought leaders and gurus of the field. It also provides an overview of the gurus' thinking on implementing the problem-solving and performance improvement processes. The Human Performance Technology section starts by providing an overview on the evolution of Human Performance Technology field. Then, the section focuses on how Human Performance Technology is defined by the pioneers of the field. After that, it reviews the constituent disciplines of the Human Performance Technology field. Finally, it reviews and discusses the performance improvement models developed by a selected group of pathfinders from both the academic and business communities. These models represent the most significant ones concerning performance improvement during the last 35 years. This section of the literature review is necessary to understand the foundations for theory and practice of the human performance improvement field. The Work Motivation section highlights and

discusses the main theories of the motivation field. It conceptualises work motivation and focuses on what factors motivate employees and how these factors can be utilised by managers to motivate their employees.

The three sections present a clear view of the role of motivation in an organisation's attempt to achieve total quality (TQ) and continuous improvement of human and organisational performance as described by the gurus of the three fields (TQM, HPT, and work motivation). These three fields are firstly elaborated to provide an overview understanding. This then is used to distil out the key elements/factors that relate antecedents of motivation and performance to human and organisational performance through the mediation of human motivation.

2.2 An Overview of Total Quality (TQ)

The real quality movement started when the U.S. Department of Defence, early in the Second World War, introduced a quality sampling procedure as a basis to accept or reject the delivery of munitions (Garvin, 1988). After that, in the early 1950s, W. Edwards Deming, Joseph M. Juran and Armand V. Feigenbaum took messages of quality to the Japanese. From the late 1950s onwards Dr. Kaoru Ishikawa and Dr. Genichi Taguchi took the response of quality in Japan. Philip Crosby concentrated on Quality Awareness from the 1970s onwards (Gehani, 1993).

For the purpose of this study, the ideas of the quality gurus (Deming, Crosby, and Juran) and some recent thoughts of the writers in the field are reviewed in detail.

2.2.1 Deming's View of Quality

Deming was the first person to introduce quality to the Japanese on a large and intensive scale. He defines quality in terms of current and future needs of the customer. He does not define quality in a single phrase, as he considers that the quality of any product or service can only be defined by the customer. So, according to Deming, quality is a relative term that will change in meaning depending on the customer's needs. Deming attributes the difficulty in defining quality to the difficulty in translating the future needs of the user into measurable characteristics, so that a product can be designed and turned out to give satisfaction at a price that the user will pay (Deming, 1986, p. 169).

Deming takes a systems and leadership approach to quality. Deming (1986) indicated that about 85 % of quality problems are the responsibility of management and the system being implemented and less than 15 % of the problems are with the workers. This makes sense because management is responsible for setting policies and strategies, defining processes and responsibilities, and providing resources. In his emphasis on leadership, Deming (1986) encourages managers to view their role as 1) colleagues to their subordinates, 2) counselling and leading them from day-to-day, and 3) learning from and with them. Deming (1986, p. 248) said:

> *The aim of leadership should be to improve the performance of man and machine, to improve quality, to increase output, and simultaneously to bring pride of workmanship to people. Put in a negative way, the aim of leadership is not merely to find and record failures of men, but to remove the causes of failure: to help people to do a better job with less effort.*

Deming adopts a technical basis toward quality, through advocating statistical process control principles. Concepts associated with his approach include (1) the System of Profound Knowledge, (2) the Plan-Do-Check-Act Cycle (Shewhart's cycle), (3) Prevention by Process Improvement, (4) the Chain Reaction for

Quality Improvement, (5) Common Cause and Special Cause Variation, (6) the 14 Points, and (7) the Deadly and Dreadful Diseases.

Deming suggests the use of a system of profound knowledge should be associated with management action. He considers the system of profound knowledge to be made up of four interrelated parts: (1) theory of systems, (2) theory of variation, (3) theory of knowledge, and (4) knowledge of psychology. Deming takes a systems approach to quality and views an organisation as a system composed of series of functions or activities that work together for the aim of the organisation (Deming, 1986). In this system, managers must be able to recognise the system stability and understand the concepts of variation and the causes of variation. Measurement of variation provides the means for predicting the behaviour of the system. For managers to gain more knowledge about the systems and processes in their Organisations they need to learn how to increase their knowledge of the processes for which they are responsible. Knowledge can be obtained and advanced through use of the scientific method. They need to know how to collect, analyse, interpret, and apply data in the workplace. In doing so, managers have to deal with their people and it is very important that they know the psychology of their people and how to deal with them individually.

Deming emphasises continuous improvement and he sees that it is the management's responsibility to constantly and continually improve the system of production and service. In doing so, Deming adopted the Shewhart Plan-Do-Check-Act (PDCA) cycle (Shewhart, 1980). The cycle is also referred to in Japan as the Deming's cycle. Deming takes a prevention approach to quality. He stresses that inspection at the end of the process is too late and too costly. He sees that prevention is achieved through the monitoring, analysis, control, and improvement of processes. Deming related quality improvement with cost and productivity in what he calls the "chain reaction for quality improvement"

(Deming, 1986, p. 3). By improving quality, costs decrease and productivity improves. As a result, there is a greater potential for an increased market share because of the competitive advantage of producing better products at lower prices.

Deming describes quality in terms of meeting customer expectations through producing products that possess a predictable degree of uniformity, suited to the end-users at a price that they can pay (Deming, 1986, p. 178). Deming says that there is no such thing as two of a kind, since variation is inherent in everything we do. No two services offered are identical. So, to produce quality, you must produce outcomes that are predictably uniform as well as satisfactory from a customer's perception. Deming has labelled sources of variation as common cause and special cause. He talks about them in terms of who is responsible for taking action.

Deming identifies seven major failure factors that he categorises as deadly diseases and dreadful diseases in most American companies. These diseases are lack of constancy of purpose, emphasis on short profits, annual performance reviews, mobility of management (e.g., job hopping), management by visible figures alone, excessive medical costs for employees, and excessive costs of liability.

In order to eliminate the above diseases, Deming condensed his philosophy and view of management into 14 points, which became action items for top management to adopt. These 14 points are (Deming, 1986, p. 76):

1. *Create constancy of purpose toward improvement of product and service, with the aim to become competitive and to stay in business, and to provide jobs.*
2. *Adopt the new philosophy. We are in a new economic age. Western management must awaken to the challenge, must learn their responsibilities, and take on leadership for change.*

3. *Cease dependence on inspection to achieve quality. Eliminate the need for inspection on a mass basis by building quality into the product in the first place.*
4. *End the practice of awarding business on the basis of price tag. Instead, minimize total cost. Move toward a single supplier for any one item, on a long-term relationship of loyalty and trust.*
5. *Improve constantly and forever the system of production and service, to improve quality and productivity, and thus constantly decrease costs.*
6. *Institute training on the job.*
7. *Institute leadership. The aim of supervision should be to help people and machines and gadgets to do a better job. Supervision of management is in need of overhaul as well as supervision of production workers.*
8. *Drive out fear, so that everyone may work effectively for the company.*
9. *Break down barriers between departments. People in research, design, sales, and production must work as a team, to foresee problems of production and in use that may be encountered with the product or service.*
10. *Eliminate slogans, exhortations, and targets for the work force asking for zero defects and new levels of productivity. Such exhortations only create adversarial relationships, as the bulk of the causes of low quality and low productivity belong to the system and thus lie beyond the power of the work force.*
11. *a. Eliminate work standards (quotas) on the factory floor. Substitute leadership.*

    b. Eliminate management by objective. Eliminate management by numbers, numerical goals. Substitute leadership.
12. *a. Remove barriers that rob the hourly worker of his right to pride of workmanship. The responsibility of supervisors must be changed from sheer numbers to quality.*

    b. Remove barriers that rob people in management and in engineering of their right to pride of workmanship. This means, inter alia, abolishment of the annual merit rating and of management by objective.
13. *Institute a vigorous program of education and self-improvement.*
14. *Put everybody in the company to work to accomplish the transformation. The transformation is everybody's job.*

2.2.2 Juran's View of Quality

Like Deming, Juran was invited to Japan in the early 1950s by the Japanese Union of Scientists and Engineers (JUSE). He arrived in 1954 and conducted seminars for top and middle-level executives. Juran defines quality as "*fitness for use*" as judged by the end-user (Juran, 1974, p. 2). Juran's definition of quality

reflects his strong orientation to meeting customers' expectations both internal and external customers. Juran emphasised a strategic and systematic problem solving approach to achieving quality. Concepts that he developed to support his philosophy include the Juran Trilogy, the Spiral of Progress in Quality, and the Breakthrough Sequence.

The Juran trilogy provides a systematic approach to managing quality. This trilogy consists of three interrelated processes: quality planning, quality control, and quality improvement (Juran, 1986). Quality planning deals with planning a process that will achieve the established goals. Quality control is concerned with determining any abnormal variation in the process and taking the necessary actions to bring the variation into a normal level. Quality improvement is concerned with seeking innovative ways to achieve better levels of performance.

The spiral of progress in quality shows the activities necessary before a product or service can be introduced to the market. Each department in the spiral is given the responsibility to carry out its assigned special activities. In addition, each department is also assigned a share of the responsibility of carrying out certain company-wide functions (Juran and Gryna, 1988). At the end, quality results from the interrelationship of all departments within the spiral. The approach of spiral of progress in quality includes:

1. Identifying the activities that could meet the company's goals of fitness for use.
2. Assigning the activities to the various departments and organisations around the spiral.
3. Providing the facilities and tools needed to conduct these activities.
4. Conducting the assigned activities within the designated departments.
5. Ensuring that these activities are properly carried out.

6. Coordinating the departmental activities.

Juran's philosophy addresses improvement of quality in terms of what he called "breakthrough". He defines breakthrough as a dynamic, decisive movement to new, higher levels of performance (Juran, 1964). His breakthrough sequence involves activities that, if carried out properly, will result in improvements in quality and performance. These activities are: 1) breakthrough in attitude; 2) identify key problems and projects; 3) establish two key organisations to analyse and solve the key problems (steering committees and diagnostic teams); 4) conduct the analysis; 5) overcome the resistance to change; 6) institute the change; and 7) institute controls.

So, Juran concepts emphasise paying attention to customers' requirements, having a system of quality measurement, designing products in relation to customers' requirements, design efficiency, and process efficiency.

2.2.3 Crosby's View of Quality

Crosby (1979) highlights the concept of zero defects, emphasising the use of organisation and management theories rather than the application of statistical tools. He specifies what quality is and what standards and systems needed to achieve quality. He defines quality and its standard by proposing four absolutes to quality management based on defect prevention rather than detection and testing:

1. Conformance to requirements i.e. Do it Right the First Time!
2. Defect Prevention is the only acceptable approach.
3. Zero Defects is the only performance standard.
4. Cost of Quality is the "Only" measurement of Quality.

In order to achieve the above absolutes, Crosby (1979, pp. 112-119) came up with a 14-step program that can be summarised as follows:

1. *Management commitment.* Management should recognise the importance of its participation in quality improvement.

2. *Quality improvement team.* Form quality improvement teams with representatives from each department.

3. *Quality measurement.* Determine where current and potential quality problems lie in the organisation.

4. *Cost of quality.* Evaluate the cost of quality throughout the organisation and explain its use as a management tool.

5. *Quality awareness.* Raise awareness and personal concern of all employees through training and proper communication.

6. *Corrective actions.* Take actions to correct identified problems on a regular basis.

7. *Zero-defects planning.* Establish committee for a zero defects program which takes the thought that everyone should do things right the first time.

8. *Supervisory training.* Conduct a formal orientation of the zero defects program to all levels of management prior to the implementation of the program.

9. *Zero defects day.* Hold a "zero-defect-day" in which "zero defects" as the performance standard of the company is established to provide emphasis and a long lasting impression.

10. *Goal setting.* Encourage individuals to establish improvement goals for themselves and their groups.

11. *Open communication.* Encourage employees to communicate obstacles to management

12. *Recognition.* Recognise and appreciate those who participate.

13. *Quality councils.* Establish Quality Councils to communicate regularly and determine actions to upgrade and improve the quality.

14. *Do it all over again.* Set up a new team of representatives and do it all over again to emphasise that quality improvement never ends.

2.2.4 Comparison of Deming, Juran and Crosby's Views of Quality

It is clear from the views of Deming, Juran, and Crosby, that although their approaches to quality have many similarities, their definitions of quality and their frameworks' emphases are different. This has been noted by a number of writers in the literature (e.g. Reeves and Bednar, 1994; Dean and Bowen, 1994). Deming's (1986) framework emphasises the systemic nature of organisations, the importance of leadership, and the need to reduce variation in organisational processes. Juran's (1989) framework involves three sets of activities: quality planning, quality control, and quality improvement. He emphasises the use of statistical tools to eliminate defects. Crosby (1979) focuses on reducing cost through quality improvement and stresses that both high-end and low-end products can have high quality. Table 2.1 below summarises and compares the views of Deming, Juran and Crosby.

Table 2.1 The Views of Deming, Juran and Crosby

Guru / Indicator	Deming	Juran	Crosby
Basic orientation toward quality	Technical	Process	Motivational
What is quality?	Non-faulty systems	Fitness for use; freedom from trouble	Conformance to requirements
Who is responsible for quality?	Management	Management	Management
Importance of customer requirements as standard	Very important	Very important; customers at each step of product life cycle	Very important
Goal of quality	Meet/exceed customer needs; continuous improvement	Please customer; continuous improvement	Continuous improvement; zero defects
Methods for achieving quality	Statistical; constancy of purpose; continual improvement; cooperation between functions	Quality trilogy: planning, control, & improvement	14-step program; cost of quality; quality management "maturity grid"
Key elements of implementation	14-point program	Breakthrough projects; quality council; quality teams	14-point framework
Role of training and development	Very important for managers and workers	Very important for managers and employees	Very important for managers and employees

Beyond the differences between the views of Deming, Juran and Crosby, the variety and continuing evolution of techniques being practiced under the rubric of total quality (TQ) makes it difficult to maintain a clear conception of its meaning. Indeed, the meaning of the term quality itself is still being debated (Reeves and Bednar, 1994).

Deming, Juran, and Crosby have set down a number of points for senior management to apply in order for companies to stay in business and take their places in the competitive market. Oakland (1995, p.28) has modified and synthesised these points into ten points for senior management to apply in order to implement TQM effectively:

1. *The organisation needs long-term commitment to constant improvement.*
2. *Adopt the philosophy of zero errors/defects to change the culture right first time.*
3. *Train the people to understand the customer-supplier relationships.*
4. *Do not buy product or services on price alone - look at the total cost.*
5. *Recognise that improvement of the systems needs to be managed.*
6. *Adopt modern methods of supervision and training - eliminate fear*
7. *Eliminate barriers between departments by managing the process - improve communications and teamwork.*
8. *Eliminate the following: arbitrary goals without methods, all standards based only on numbers, barriers to pride of workmanship, and fiction. Get facts by using the correct tools.*
9. *Constantly educate and retrain - develop the experts in the business.*
10. *Develop a systematic approach to manage the implementation of TQM.*

Oakland (1995) consolidated the above 10 points into a model of total quality management that focuses on understanding the customer-supplier relationships. Identifying the customer (internal and external customers) requirements, and meeting them, act as the core of a total quality approach. Managing the processes that lead to customer satisfaction must be supported by three "hard management necessities": a good quality management system, tools such as statistical process control (SPC), and teamwork. The right culture, communication, and commitment form the "soft" outcomes of TQM (Oakland, 1995).

Although the word motivation has not been mentioned explicitly in the points highlighted by the quality gurus, apparently Deming, Juran, and Crosby embedded the implications of motivation in their points through the concepts of training, commitment, fear-free environment, improved communications, teamwork, and pride of workmanship. These concepts are indispensable in an organisation's attempt to develop a systematic approach to achieve total quality. It is therefore, imperative that the implications of motivation can truly be recognised through a thorough study of what really is Quality and Total Quality (TQ).

2.2.5 What is Quality?

As noted before, the quality gurus' definitions of quality and their frameworks' emphases have some differences (Reeves and Bednar, 1994; Dean and Bowen, 1994). Reeves and Bednar (1994) traced the evolution of quality definitions and described the strengths and weaknesses of each definition and when each definition of quality is better used. They concluded that "The search for a universal definition of quality has yielded inconsistent results. Such a global definition does not exist; rather, different definitions of quality are appropriate under different circumstances". Dean and Bowen (1994) mention that "Despite thousands of articles in the business and trade press, total quality remains a hazy, ambiguous concept".

Quality has been defined differently by various writers at various times. It has been defined as "value" (Feigenbaum, 1951; Abbott, 1955), "conformance to specifications" (Gilmore, 1974; Levitt, 1972), "conformance to requirements" (Crosby, 1979), "fitness for use" (Juran, 1974, 1988), "loss avoidance" (Taguchi, cited in Ross, 1989), and "meeting and/or exceeding customers' expectations" (Gronroos, 1983; Parasuraman, Zeithaml, and Berry, 1985). Regardless of the

time period or context in which quality is examined, the concept has had multiple and often muddled definitions and has been used to describe a wide variety of phenomena. Different writers have defined Total Quality from different aspects. Definitions of Quality and Total Quality by different writers are shown in tables 2.2 and 2.3, respectively.

Table 2.2 Definitions of Quality

What is Quality?	By whom
Value	(Feigenbaum, 1951, p. 1; Abbott, 1955)
Conformance to specifications	(Levitt, 1972; Gilmore, 1974)
Conformance to requirements	(Crosby, 1979, p. 15)
Fitness for use	(Juran, 1974, p. 2)
Excellence	(Peters and Waterman, 1982)
Loss avoidance	(Taguchi, cited in Ross, 1989)
Meeting and/or exceeding customer expectation	(Gronroos, 1983;Parasuraman *et al.*, 1985)
Delighting the customers	(Peters, 1989)
The totality of features and characteristics of a product or service that bear on its ability to satisfy the stated or implied needs.	(BS 4778:Part 1,1987)

Table 2.3 Definitions of Total Quality

What is TQM	By whom
"Integrative management concept for continuously improving the quality of goods and services delivered through the participation of all levels and functions"	(Evans and Lindsay, 1993, p.28)
"Set of techniques and procedures used to reduce or eliminate variation from a production process, or service delivery system in order to improve efficiency, reliability and quality"	(Steingard and Fitzgibbons, 1993)
"TQM is an approach to improving the competitiveness, effectiveness and flexibility of a whole organisation.	(Oakland, 1995, p. 18)
"TQM is - A business philosophy that seeks to improve the results, including financial performance, of an organisation's management system; guarantee its long-term survival through a consistent focus on improving a customer satisfaction; and meet the need of all its stakeholders: customers, employees, owners and suppliers"	(Dubblins, 1995, p. 32)
"Total Quality - a way of doing business - an all - encompassing quality-focused approach which creates and gains its advantage from a synergy among all aspects the organisation working together to achieve excellence. An approach which creates value for customers, employees, stakeholders/owners, and the community, and which ultimately leads to a realization that products and services are the expression of human excellence"	(Ebel, 1991, p. 6)

"Quality Management or Total Quality Management (TQM) is a way to continuously improve performance at every level of operation, in every functional area of an organisation, using all available human and capital resources. Improvement is addressed toward satisfying broad goals such as cost quality, market share, schedule and growth"	(Brocka and Brocka, 1992, p. 3)
"It is a set of mutually reinforcing principles, each of which is supported by a set of practices and techniques, and all of which are ultimately based on fulfilling customers' needs"	(Dean and Bowen, 1994)
"A management approach of an organisation, centred on quality, based on the participation of all its members and aiming at long term success through customer satisfaction, and benefits to the members of organisations and to society."	(ISO 8402, 1994)

Considering both the similarities and differences between the views of Deming, Juran, and Crosby, the key elements of TQM can be summarised as follows: management commitment, management leadership, quality culture, customer satisfaction, empowerment, teamwork, participation and involvement, employee commitment, prevention, continuous improvement, and on-going training. These elements are all tangled up into what is know as Total Quality Management (TQM) and aim to improve human and organisational performance. This leads to ask the following curious question: **Is TQM the solution to human and organisational performance?** The answer to this question is still debatable in literature. Many writers indicate that while total quality approaches have resulted in noticeable success, their failure, which is less publicised, has been even greater (e.g. Adhire, 1996; Roberts and Corcoran-Nantes, 1995; Krishnan, 1993). Other writers have questioned TQM's ideological basis, conceptual soundness, and its applicability (e.g. Hill, 1995; Dean and Bowen, 1994; Wilkinson *et al.*, 1991).

2.2.6 Reasons for the High Level of Ambiguity of TQM Definitions

According to Wilkinson, Redman, and Marchington (1998) and Hill and Wilkinson (1995), the high level of ambiguity of TQM definitions amongst the total quality gurus can be attributed to the following reasons:

- The gurus of quality have differed amongst themselves on the definition of quality as their understanding of TQM varies as a function of their own beliefs and experiences.
- The original pioneers of total quality have focused their works on more prescription rather than analysis of the total quality concept.
- The wide variety of activities, practices, and techniques of implementing TQM
- The practitioners have used the term TQM to refer to their different practices of quality management
- The intellectual origins and some of the theoretical bases of TQM have been based on statistics and practices while it is the other way around in management theory.

Dean and Bowen (1994) attribute the ambiguity of TQ to two main reasons. The first reason is the differences among the frameworks proposed by the quality gurus such as Deming, Juran, and Crosby. These differences have contributed to the confusion and ambiguity of the concept of total quality. The second reason is due to the variety and continuing development of techniques being practised under the name of TQ. This has made it difficult to maintain a clear conception of the meaning of total quality.

2.2.7 Critiques of TQM

The literature on TQM has been criticised to be more concerned with process than content (Reed *et al.*, 1996). Furthermore, other writers have questioned TQM's ideological basis, conceptual soundness, and its applicability (e.g. Hill, 1995; Dean and Bowen, 1994; Wilkinson *et al.*, 1991). Some critiques on the TQM literature are presented below:

1. Some quality experts propose an ideal vision that overemphasises processes over the results.

2. TQM with its long-term approaches that aim at improving systems makes it so difficult to produce visible results in the short term. Also, these long-term approaches allow managers to hide behind expected long-term improved systems and avoid being asked to explain difficulties and achievement of negative results during the implementation period of TQM approaches.

3. TQM literature fails to address the importance of organisational contingencies. For example, applying some TQM principles can aggravate the problem when there is a mismatch between environmental orientation and the firm's uncertainty (Reed *et al.*, 1996).

4. TQM literature does not base on a sound theory or refer to management theory. Some attempts in the literature tried to establish some links between TQM and some management theories. For example, Dean and Bowen (1994) argued that some TQM principles such as leadership, training and participation could be referred to and linked with the theory of human resources management.

5. The TQM literature does not consider the presence of different interest groups within the organisation (Roberts and Corcoran-Nates, 1995; Wilkinson, 1991).

2.2.8 Why Quality Initiatives Fail

Erickson (1992) attributed the failure of many quality initiatives to three root causes. Firstly, the majority of TQM projects do not focus on the most

important business processes such as obtaining new customers, retaining existing customers and developing new products. Instead, they focus on already identified processes and customers. Secondly, most companies fail to align their organisations' policies, resources, structure and culture to support long-term improvement efforts. Also, they fail to realise and understand how the investments on their resources are interconnected. Thirdly, organisations often do not link their improvement projects with their strategic goals. Erickson (1992) addressed the above three root causes by introducing a business model, which focuses on satisfying the key stakeholders of the business who are the customers, the employees and the owners of the business. This is done through identifying and understanding the needs of each stakeholder group and then directing business strategies and investments to meet these needs. The model pays attention to the key business processes: obtaining new customers, retaining existing customers and developing new products and considers these processes as the path for achieving high performance and stakeholders' satisfaction.

Jarrar and Aspinwall (1999) attribute the failure of many TQM projects to two main flaws in TQM: lack of strategic impact and lack of people focus. Conducting strategic business planning is very important to set the future direction of the organisation before starting the TQM initiative. If strategic business planning is not conducted, it will cause major failure of TQM initiative. The second problem with TQM is its emphasis on using process-oriented approaches rather than people-oriented approaches. Their study led to the conclusion that employee resistance, lack of support, lack of enthusiasm and lack of the right culture can directly cause failure of TQM initiatives. Mainly, these factors deal with people and their motivation in the workplace.

Erickson (1992), in an attempt to address the root causes of the failure of many quality initiatives, emphasised addressing stakeholders' needs, especially

employees' needs, and aligning organisational strategies and goals with these needs. He focuses on identifying stakeholders' needs and then directing organisational strategies and goals to meet the needs of all stakeholders. Whalen and Rahim (1994) emphasised the importance of motivation in the successful implementation of TQM programs. Tippett and Waits (1994) see that "TQM emphasises improving and motivating a company's most valued asset, its workforce". They propose that employee empowerment plays an important role in improving his/her motivation, which in turn directly impacts project management and the ultimate success of the TQM efforts. On the other hand, they also note that employee motivation is not closely monitored. Gaines (1994) suggests that improving employees' motivation is a key component for achieving an organisational transformation. Since employees play an essential role in the success of TQM programs, Kappelman and Prybutok (1995) see that improvements in employee motivation and morale can effectively double the chances of overall TQM program success.

The issues highlighted in this subsection and the previous two subsections can be seen to be concerning with two main types of factors: person factors and system factors. The following two subsections show how some TQM proponents and writers have addressed these issues.

2.2.9 Recent Thoughts on TQM

There are some attempts in the literature that address the above issues and propose some frameworks that connect both person and system factors aiming towards a theory of work performance (e.g. Reed *et al.*, 1996; Dean and Bowen, 1994; Spencer, 1994; Waldman, 1994; Anderson *et al.*, 1994; Garvin, 1991). Reed *et al.* (1996) address organisational performance, in the form of increased revenues, reduced costs, and their time lags, in the context of organisational

orientation (customer or operations), TQM content, and environmental uncertainty. They identified market advantage, product design efficiency, process efficiency, and product reliability as key features of TQM content. They argued that when there is a match between environmental uncertainty and organisational orientation, market advantage and product reliability can increase revenues, and process efficiency and product design efficiency can reduce costs. On the other hand, a mismatch reduces revenues and/or increases costs.

Dean and Bowen (1994) also pointed out that TQM, in contrast to management theory, is heavy on implementation but light on content. Moreover, they attribute the difficulty of maintaining a clear conception of the meaning of total quality to the variety and continuing development and practice of techniques under the name of TQ. They suggest that the implementation of TQ and management practices could be enhanced by paying more attention to: formal analysis of information, inclusion of assessment of organisational strengths and weaknesses into strategy, selection and assessing person-organisation fit, and taking a rigorous approach to customer-supplier relationships and employee involvement and empowerment initiatives.

Waldman (1994) considers a system-focused perspective. With regard to the determinants of work performance and in modelling work performance he takes into consideration the reciprocal influence between system factors and person factors and the hierarchical level and autonomy as moderating factors. He views the system as affecting performance by indirectly enhancing aspects of the person, interacting with the person, and constraining performance at lower hierarchical levels and in jobs lacking autonomy. Also, he sees that person factors can impact the system and work performance, especially at higher hierarchical levels and in jobs with more autonomy. According to Waldman (1994), the person factors are knowledge, skills, ability, and motivation.

Spencer (1994) sees TQM as a philosophy that links mechanistic, organismic and cultural concepts. In his assessment of the cultural model, he indicates that both individual and organisational purposes need to be considered. Using this view, all employees in the organisation are seen to participate in the creation of vision and systems.

Anderson *et al.* (1994) used the Delphi method, involving a panel of experts on the Deming management method, to determine the basic concepts underlying Deming's 14 points. They identified seven key concepts in the Deming Management Method: employee fulfilment, visionary leadership, internal and external cooperation, learning, process management, continual improvement, and customer satisfaction. Their theoretical statement of quality management underlying the Deming management method is as follows (Anderson *et al.*, 1994, pp. 479-480):

> *The effectiveness of Deming management method arises from leadership efforts toward the simultaneous creation of a cooperative and learning organisation to facilitate the implementation of process-management practices, which, when implemented, support customer satisfaction and organisational survival through sustained employee fulfilment and continuous improvement of processes, products, and services.*

A conceptual framework that addresses the principal domain of TQ and incorporates diversity of viewpoints from different quality gurus is the Baldrige criteria that was developed by the U.S. government in 1987 for the purpose of recognising quality excellence and stimulating quality improvement in American Industry (Garvin, 1991). The good thing about the Baldrige criteria is that it is updated annually by a team of experts to reflect current thinking of TQ. The Maclolm Baldrige National Quality Award is given annually to manufacturers, service companies, small businesses, and recently to health care and educational organisations. The Baldrige National Quality Program developed criteria for performance excellence for the three sectors of organisations: business, health

care, and educational. The Baldrige performance excellence criteria for business organisations is based on seven categories: 1) leadership; 2) strategic planning; 3) customer and market focus; 4) measurement, analysis and knowledge management; 5) human resource focus; 6) process management; and 7) business results (Baldrige National Quality Program, 2003).

2.2.10 Quality Consciousness

Sandell (1979) suggests that for manufacturing firms to do better, supervisors must instil quality consciousness into the employee's behaviour at work. According to Sandell, quality performance is achieved through three key factors: (1) the supervisor's leadership, (2) his ability to instil the will to compete in employees, and (3) his power to motivate personnel. To instil and heighten quality consciousness into the employee's work, Sandell suggested 10 steps for supervisors to follow: (1) start at the beginning, (2) put relations with employees on an individual basis, (3) refuse to take less than the best, (4) keep communications moving, (5) be thorough in inspection, (6) win employees to your side, (7) review past operations, (8) work with other departments and supervisors, (9) use imagination, and (10) exercise and give leadership.

Lateef (1988) sees that although commitment to standards of quality by management of banking sectors is essential, it is insufficient. He suggests that management needs to instil and reinforce quality consciousness in its workers, translate good intentions into tangible operational measures, focus on customer satisfaction, and integrate quality into the texture of firm's identity. Scheuing (1990) suggests that in order to build quality consciousness in a workgroup, everyone in the workgroup should understand that quality involves consistently meeting or exceeding customer needs or expectations. In order for everyone to understand this and become part of the quality improvement process, Scheuing

suggests 12 steps to follow: (1) hold a participatory session to discuss quality, (2) have the team identify its performance strengths and weaknesses, (3) discuss the importance of quality and its benefits, such as reduced costs, the elimination of rework, improved profitability, and greater pride, (4) build quality commitment by giving team members "ownership" of the effort, (5) establish quality goals, (6) remove inhibitions or barriers to improving quality, (7) assist team members in efforts to change, (8) control the work process, (9) measure achievements, (10) reward progress and correct weaknesses, (11) review and set new goals, and (12) keep the momentum going.

Wood and Peccei (1995) define the concept of quality consciousness as "the relative strength of an individual's concern for the quality of his/her work output and the relative importance which he/she attaches to the achievement of quality as a work goal." Quality consciousness, according to the authors, has three main elements: (1) willingness to engage in continuous improvement, (2) strong concern and awareness of the need to satisfy (internal and external) customer requirements, and (3) strong commitment to and belief in the importance of doing quality work. Peccei and Wood (1994) and Wood and Peccei (1995) assess the impact of implementing TQM programmes on employees' quality consciousness. They develop a model of quality consciousness and postulate that four main factors positively affect quality consciousness. These factors are: quality culture, supportive and quality-oriented supervision, organisational commitment and job competence. Their test of the model showed that these factors significantly affected the employees' quality consciousness.

Deming's (1986) concept of profound knowledge includes psychology. Managers have to deal with their people and it is very important that they know the psychology of their people and how to deal with each one of them individually. Chuan (1997) sees that there are different levels of human consciousness and

that dynamic relationships exist at all levels of human consciousness. He perceives that quality consciousness transforms from the level of prosperity to the level of happiness, to the level of peace, to the level of harmony, and finally to the level of enlightenment. Chuan (1997) developed a framework, named the "Tao of quality framework", in which he suggests that a different TQM model is appropriate at each level of existence. To make each TQM model appropriate, it has to be associated with the prevailing dominant life values at that level. If an organisation culture matures at that level, it will build up energy and competence. Then the sustained practice will eventually transform the organisation to the next higher level of existence.

Goh (2000) sees that quality circles activities are better supported by positive working environment, strong teamwork, as well as improvements in problem-solving, interpersonal relationship, leadership and personal communication skills. This helps inspiring greater quality consciousness among staff.

Heaton and Harung (1999) perceive a consciousness-based organisation to have seven properties: efficiency on a par with nature's principle of least action; spontaneous and frictionless coordination; creative inspiration akin to artistic genius; doing well by doing good: prosperity and social value; harmony with the natural environment; spontaneous change in an evolutionary direction; and leadership which promotes full human development.

Kondo (1997; 1999) emphasises that quality is a more "human" concept than either cost or productivity. This, according to Kondo, should be embedded in the company's basic business philosophy and managers should talk to their employees about the philosophy regarding quality and the activities that manage and ensure this quality. Employees must have a strong sense of responsibility towards achieving the work aims. Kondo (1996) considers introducing and fully

displaying creativity and humanity in our daily work as vital for human motivation. According to Kondo, managers can motivate their employees towards achieving work aims in a creative manner by applying four steps: (1) clearly indicating the true aim of the work when giving work instructions, (2) giving people a strong sense of responsibility towards their work, (3) providing freedom in the means and methods of handling the work, and (4) encouraging and assisting their employees to put their ideas into action. In this sense, Kondo (1996; 2000) sees that creativity and work standardisation are complementary rather than contradictory to each other.

HRM and TQM share very important elements. Both of them call for a cultural shift with change in values, organisational structure, the way people work together, and the way people feel about participation and involvement (Hart and Schlesinger, 1991). Wilkinson *et al.* (1998, p.41) argue that a particular approach to HR strategy is required for successful implementation of TQM. Fombrun *et al.* (1984) introduced a framework for strategic human resource management. The framework focuses attention to the management of individual performance through appraisals, rewards and development.

In general, the recently proposed factors of TQM can be summarised as: organisational orientation, environmental uncertainty, market advantage, design efficiency, process efficiency, product reliability (Reed *et al.*, 1996), analysis, assessment of organisational strengths and weaknesses, selection and assessing person-organisation fit, rigorous approach to implementation (Dean and Bowen, 1994), interaction between system and person factors, and consideration of both individual and organisational goals (Spencer, 1994). It is interesting to note that much of later developments in TQ (Reed *et al.*, 1996; Dean and Bowen, 1994; Spencer, 1994; Waldman, 1994; Anderson *et al.*, 1994; Garvin, 1991) were recognised and elaborated by HPT's proponents much earlier (Harless, 1970;

Kaufman, 1972; Gilbert, 1978; Rummler and Brache, 1988). It seems surprising therefore not to see reference to such work in the TQ literature. Section 2.3 shows how HPT's proponents starting from the late 1970s have already recognised such work.

Total Quality, as defined by many writers, places a heavy emphasis on people. Quality related factors pertaining to people can be summarised as follows: employee commitment, culture change, leadership, teamwork, participation and involvement, satisfaction, and training and development, which are all dependent on the extent to which the employees are motivated (Deming, 1986; Juran, 1974; Crosby, 1979; Reed *et al.*, 1996; Dean and Bowen, 1994; Spencer, 1994; Waldman, 1994; Anderson *et al.*, 1994; Garvin, 1991; Kondo, 1990). These factors and others will be discussed in detail in sections 2.3 and 2.4.

2.3 Human Performance Technology (HPT)

Human Performance Technology (HPT) is a field, which uses a wide range of interventions that are drawn from many other disciplines. These disciplines include behavioural psychology, instructional systems design, organisational development, and human resources management. The HPT approach stresses a rigorous analysis of both current and desired levels of performance, identifies the causes for the performance gap between current and desired levels, offers a wide range of interventions that improve performance, guides the change management process, and evaluates the results. The word *human* in the term refers to the individuals and groups that make up an organisation. *Performance* refers to the activities and measurable outcomes. *Technology* refers to a systematic and systemic approach to solve practical problems (Stolovitch and Keeps, 1999). This section introduces, first, how HPT was discovered. A full description of the

HPT field follows, and then the origins and evolution of the HPT field are elaborated. At the end, models developed by HPT proponents are explained.

2.3.1 Discovering Human Performance Technology

Many managers send their employees to training with the purpose of enabling the employees to perform better by increasing their skills, knowledge and ability. In other words, managers send their employees for training to improve their performance and the performance of the organisation as a whole. The role of training is to increase the skills and knowledge of people at work. This role is achieved when the training is well designed and implemented. Training is a very good tool to achieve improved skills and knowledge, but it becomes a poor tool to achieve other things such as changing employee attitude or motivation. It also cannot substitute for clear job aids or instructions or for being provided with the right resources necessary to perform the work. If this is the case, then why do organisations send their employees to training and expect training to do more than its capability? There are many reasons for this. First, most organisations have a training department, which is interested in providing training as its main task. The training department will always try to sell the importance of training to the organisation. Second, employees ask for training for different motives. Third, it is difficult for managers to decide whether training achieves its objectives or not. Fourth, many managers are unfamiliar with other performance improvement alternatives. Fifth, and finally, many managers are too busy to find out about these alternatives (Fuller and Farrington, 1999; Stolovitch and Keeps, 1999).

So, training may not always result in improved performance, and it does not resolve many performance problems. This calls for the need for a different approach; rather than the organisation being focused on training it needs to be focused on improving performance. This leads organisations to think of other

interventions to performance problems and opportunities before deciding on which intervention or combination of interventions could be used to resolve a particular performance problem. An organisation needs to make a significant transition in order to shift from a focus on training to a focus on performance improvement. Improving the knowledge, skills, ability and attitudes of employees is not sufficient to improve their performance in the workplace. There are other factors that affect their performance, for example, information availability, resources and incentives (Gilbert, 1978).

The need for a focus on performance improvement was the result of the failure of many training programmes to achieve specific business goals. As organisations began to analyse why training programmes failed to achieve specific business goals, they started to realise the importance of performance improvement focus and they have started to develop different tools and methods that could be used to improve performance. This new approach needed a name and so the term "Human Performance Technology" (HPT) was coined to represent this approach. People who use HPT are called human performance technologists, performance technologists, or performance consultants (Fuller and Farrington, 1999).

2.3.2 Description of Human Performance Technology

What is HPT? HPT has been described and defined clearly by many authors. The reader can refer to the Handbook of Human Performance Technology (Stolovitch and Keeps, 1999). In order to have a clear and consistent understanding of what HPT is, the following definition, by Fuller and Farrington (1999, p. 14), is discussed:

> *Human performance technology is a systemic and systematic approach to identifying the barriers that prevent people from achieving top performance that contributes to the success of an organisation. We then create solutions that quickly and effectively*

remove those barriers so that people can improve their performance and achieve their full potential.

There are two important elements of the above definitions: the systemic and the systematic elements. Let us look first at the systemic element of the definition. Looking at what drives people to perform and the barriers to their performance, employees can be understood to work within a system in which many internal and external factors affect their performance. The performance of the employees depends on how the components of the whole system operate. HPT looks at the entire system and adopts a systems approach to performance improvement of the organisations and the people responsible for achieving the desired results. A number of authors have conceptualised organisations from the perspective of a human performance system (HPS). Stolovitch and Keep (1999) present a model in which the human performance is influenced by both the external environment factors (opportunities, pressures, events and resources) and the organisational environment factors (information, resources, incentives, culture/climate, and job demands). The external environment will generate business goals and objectives and internal requirements for the organisation. The human accomplishments are then checked for alignment with the business requirements, and modified such that they become aligned.

Rummler and Brache (1995) model human performance system using five components that affect the individual performance in any organisation: the performer, inputs, outputs, consequences and feedback. The performer should have the appropriate skills, knowledge and capacity to process some inputs and convert them into desired outputs, which result into consequences that are aligned to support the performer into producing the desired outputs. The outputs and consequences are fed back to the performer so he or she knows if the desired output is achieved and, if not, how to achieve it.

Spitzer (1999) develop a human performance system, which includes both internal and external factors that affect human performance. The internal factors are knowledge, skills, attitude and other personal attributes. The external factors are expectations, work methods and procedures, tools, resources and constraints, measurements, consequences and feedback.

Fuller and Farrington (1999) conceptualise a human performance system where organisational inputs, people and their behaviours lead to performance, consequences, and feedback which loops back to the organisation and its people. An organisation provides inputs to its employees in terms of what results they are expected to achieve in their job and the organisational culture that identifies how to treat one another and do work within the organisation. The employees take the organisational inputs and use their knowledge, skills, attitudes and capabilities and result in job related behaviours (actions or activities) that lead to the desired performance in terms of outcomes desired by the job. The job performance is associated with consequences, such as rewards, incentives, recognition, status and responsibilities. These consequences are aligned with the organisational inputs to reinforce the desired performance. In order to do that, information about the consequences are fed back to the employees and the organisation. All these components exist in an environment and are affected by the environmental factors, which include work processes, information and tools. These factors play a significant impact on performance.

The fact that the human performance system has many parts explains why training, by it self, is not a sufficient approach to improving performance. Training can have a positive impact on the people component of the human performance system as this component deals directly with knowledge and skills. On the other hand, training cannot fix the causes of performance problem in the areas of organisational inputs, consequences, feedback or the environment and

therefore other type of performance improvement solutions need to be created to address the performance barriers in each of the elements of the human performance system. Because of these shortcomings, the human performance system looks at all the variables within the system to determine what impacts performance i.e. it adopts a systemic approach.

It has been mentioned earlier that HPT is systematic as well. The human performance system and its components are examined using a systematic process to ensure that neither an important factor is missed nor any conclusion is jumped to. Many writers have created a large number of HPT models over the years and most of them contain the essential elements of problem definition, root cause analyses, solution implementation, and evaluation (Fuller and Farrington, 1999).

Problem definition is the first phase of the HPT process. It starts with identifying business needs and defining the desired outcomes of the business. The desired performance is then compared with the existing or current performance to identify what performance gaps do exist. The second phase of the HPT process is the root cause analysis. Root cause analyses are used in this phase to determine what the real causes of the performance gaps are. Eliminating the identified root causes lead to achieving the desired performance. The identified root causes act as the basis for identifying the appropriate performance interventions that will eliminate the performance barriers. The analysis process of root causes also compares the cost of eliminating the performance barriers with the benefit of achieving needs. Once the root cause analysis phase is conducted, the intervention implementation phase follows. In this phase of the HPT process, the selected intervention is designed, developed, implemented, and evaluated. The implementation of the intervention is evaluated based on achieving the business goals identified in the problem definition phase. This explains the systematic element of the HPT process.

Dean and Ripely (1997, p. 9) define the word technology in the term human performance technology as

> *The scientific study of practical matters and the application or intervention of an aggregate of procedures, processes, and techniques to solve problems. These interventions include stand-up training, job aids, electronic support systems, process redesign, total system redesign, and changing workplace ergonomics.*

Many other authors have defined HPT in the literature. Definitions of Human Performance Technology by different writers are shown in Table 2.4.

One can notice from the definitions of HPT that there is no single definition universally agreed upon. However, a consensus on the critical attributes of HPT appears to have formed (Stolovitch and Keeps, 1999, p. 9). These attributes are:

- HPT *is systematic.*
- HPT *is systemic.*
- HPT *is grounded in scientifically derived theories and the best empirical evidence available.*
- HPT *is open to all means, methods, and media.*
- HPT *is focused on achievements that human performers and the system value.*

Table 2.4 Definitions of HPT

What is HPT	By whom
"Human performance technology is a set of methods and processes for solving problems or realizing opportunities related to the performance of people. It may be applied to individuals, small groups, or large organisations"	NSPI cited in Hutchison (1989, p.6)
"Performance Technology is the systematic process of identifying opportunities for performance improvement, setting performance standards, identifying performance improvement strategies, performing cost/benefit analysis, selecting performance improvement strategies, ensuring integration with existing systems, evaluating the effectiveness of performance improvement strategies, (and) monitoring performance improvement strategies."	Benefit and Tate (1990)
"Human performance technology represents the use of the systems approach in a number of different forms, depending upon the problem of interest and professional activity required."	Jacobs (1988, p. 67)
"Human performance technology is the process of selection, analysis, design, development, implementation, and evaluation of programs to most cost effectively influence human behaviour and accomplishment.	Harless (cited in Geis, 1986, p. 1),
"The total performance improvement system is actually a merger of systematic performance analysis with comprehensive human resource interventions. And the science of linking the total system together is known as human performance technology."	Rosenberg (1990, p. 46)
"An engineering approach to attaining desired accomplishment from human performers by determining gaps in performance and designing cost-effective and efficient interventions."	Harless (1995, p. 75)

"PT takes a systems view of human performance, recognising that it takes an aligned organisation and its people to accomplish significant results"	Rossett (1995).
"HPT, therefore, is an engineering approach to attaining desired accomplishments from human performers. HP technologists are those who adopt a systems view of performance gaps, systemically analyse both gap and system, and design effective and efficient interventions that are bases on analysis data, scientific knowledge, and documented procedures, in order to close the gap in the most desirable manner."	Stolovich and Keeps (1992, p. 7)
"A perspective, or way of thinking about how individual and organisational performance can be enhanced, that encompasses systems thinking applied to the widest array of human resource activities"	Rosenberg (1995)
"Performance technology is the systematic application of identifying that a need exists to establish, maintain, extinguish and/or improve performance in an individual and/or organisation; defining the need; identifying, implementing, and networking appropriate interventions, and validating that the results are true improvements."	Langdon, 1991
"A systematic set of methods, procedures, and strategies for solving problems, or realizing opportunities, that are related to the performance of people."	Addison and Hiag (1999)
"A systematic process of discovering and analysing, important human performance gaps, planning for future improvements in human performance, designing and developing cost-effective and ethically justifiable interventions to close performance gaps, implementing the interventions, and evaluating the financial and nonfinancial results."	Rothwell (1996, p.3)
"A fundamental commitment to the identification of organisational performance problems and the development of the most appropriate solutions."	Dick and Wager (1995, p. 35)
"Diagnosing organisational ills and improving human performance within organisations."	Carr (1995, p. 59)
"Human Performance Technology is the development of human performance systems, and the management of that development, using a system approach to achieve organisational and individual goals."	Jacobs (1987, p. 82)

2.3.3 Gilbert's Characteristics of the Human Performance Science

In the *Handbook of Human Performance Technology* (1992) edited by Harold D. Stolovitch and Erica J. Keeps, Thomas F. Gilbert opened the volume speaking from his 30 years of experience in an attempt to develop a scientific way to improve human performance in the workplace. He believes that job performance and job management are still so primitive and simple to the extent that anyone can go into the workplace and find ways to improve performance to a great extent. He emphasises that science and common sense could be used to improve performance in the workplace. Because a technology of human performance focuses on those people doing and managing the job, Gilbert finds that there is much greater potential for improving performance in the workplace. He came up

with the concept of potential for improving performance (PIP), which he defined as the ratio of exemplary performance to the average one.

Gilbert considers science to be at the base of a technology and, according to him, it has five characteristics, which can be explored in the context of the science of human performance as follows (Stolovitch and Keeps, 1992; in Foreword by Gilbert):

1. Science has a clear subject matter

The science of human performance focuses on human accomplishment rather than behaviour. In other words, accomplishment is considered as the dependent variable and behaviour is the independent variable. Therefore, performance is considered to be a combination of behaviour and accomplishment. That is

Performance is a function of Behaviour and Accomplishment

i.e., $P = f(B, A)$

2. Science simplifies

The science of human performance uses a simple, yet rigorous, way to evaluate all contributions. Any contribution made should be easily communicated with its pieces fitting together coherently and it contributes to the development of science.

3. Science is grounded in measurement

The science of human performance relies on direct, comparative and economic measures. Direct measures are measures of quality, quantity and costs, comparative measures show variance in performance, and economic measures translate direct and comparative measures into monetary values. The evidence of human performance must rely on measurement. In fact correct performance

measurement and its communication to the employees can have the greatest effect on performance.

4. Science is careful of its language

The science of human performance carefully uses the language to inform and communicate without creating jargon. For example, the word *accomplishment* is used instead of *output* because it implies value.

5. Engineering science focuses on its most promising independent variables

Gilbert concludes that people will mostly rise to exemplary levels of performance if their pay is made contingent to performance, they are told clearly what is expected of them and whether they have delivered it, and they are given excellent instruction when they need it. He further says that "if we get the three I's right – information, incentives, and instructional design – we will have done 95 percent of the job."

2.3.4 The Origins and Evolution of the HPT Field

Professional societies such as the International Society for Performance Improvement (ISPI), the American Society for Training and Development (ASTD), and the International Federation of Training and Development Organisations (IFTDO) and professional Journals such as Training, Training and Development, Performance Improvement and Performance Improvement Quarterly provide a lot of support and discussion to the field of HPT.

It is important to review the foundations of HPT for a number of reasons. These reasons include (Rosenberg *et al.*, 1999):

- HPT is known as a field, which uses the science and techniques of some other disciplines and therefore, it is important to understand the foundation on which the field of HPT is built on.
- By understanding the origins of the HPT field, HPT researchers and practitioners can better communicate HPT's role to academics in more established fields and to managers in work settings.
- As the field of HPT is still an emerging one, it is very important for the peers of the field to understand the origins and evolution of the field in order to define and set the parameters of HPT.
- As HPT is implemented globally, practitioners need to understand the conceptual and historical origins of HPT in order to have a common ground in applying HPT across borders, cultures and economic systems.

So, where did Human Performance Technology come from? In an attempt to discover the source and history of performance technology, the early views of performance technology are noted. In year 1982, Harold Stolovitch recorded his view of performance technology in his article, *Performance Technology: An Introduction* (Stolovitch, 1982). He noted that performance technology has evolved from three main areas. These areas are general systems theory, behavioural sciences and programmed instruction. The next view of performance technology appears in Geis (1986). Geis observes that HPT is the result of a number of knowledge sources: cybernetics, systems theory, communications theory, information theory, media, behavioural psychology, and programmed instruction. Later, Jacobs (1987) outlined the evolution of performance technology. He stated that performance technology evolves from a number of different fields. The fields include general systems theory, communications, learning psychology, management science, and economics. Stolovitch and Keeps (1992) describe the HPT field as follows:

Human Performance Technology (HPT) is a field of practice that has evolved largely as a result of the experience, reflection, and conceptualisation of professional practitioners striving to improve human performance in the workplace. It is a relatively new field that has emerged from the coalescing of principles derived from the carefully documented practice of thoughtful behavioural and cognitive psychologists, instructional technologists, training designers, organisational developers, and various human resource specialists. HPT possesses a base of research and theory but, as a rapidly evolving professional field, its practice frequently outpaces its research and theoretical foundations.

Brethower (1995) said (cited in Dean Repley, 1997, pp. 11-12; emphasis in the original):

> *Human Performance Technology has enjoyed a 30-year record of achievement. Many of us who have participated in all 30 years began as instructional designers specialising in programmed instruction. We soon learned that there are sometimes large gaps between what someone thinks learners need to know and what they actually need to know; we discovered needs analysis/front-end analysis and invented techniques to close the gap. We discovered that in addition to the well-known gap between performing-in-training and performing-in-the-workplace, there is a gap between knowing how to do things right and knowing the right things to do. These discoveries forced us to begin a long journey, the journey of invention of what we've come to call human performance technology.*
>
> *As the journey began, we were encouraged to discover that the theories we used to guide front-end analysis and instructional design enabled us to do good work in human performance technology (cf. Stolovitch & Keeps, 1992). Some of us have, sometimes reluctantly, continued to focus on instructional design. Others have dashed about looking for solutions in fields such as industrial engineering, organisational psychology, or human resource management.*

There is a number of different but closely associated areas of study that aim, directly or indirectly, at the human performance improvement in the workplace. This indicates that the field of performance improvement is a multidisciplinary field that draws from these different areas of study. Thus, HPT has emerged from a number of disciplines. These disciplines include general systems theory, learning psychology, instructional system design (ISD), analytical system, information technology, cognitive systems engineering, ergonomics and human factors, feedback systems, and organisational development and change (Dean

and Ripley, 1997; Rosenberg *et al.*, 1999). This list of HPT related disciplines allows us to gain insight into where many of HPT's current practitioners acquired their background knowledge. In addition, a number of practitioners came into the HPT field with previous experience as instructional technology managers, course designers, and training specialists. The relationship between HPT and each of these disciplines will be explored in the following paragraphs.

2.3.4.1 HPT and General System Theory

One can perceive any organisation as a combination of processes that form integrated systems. Any system of these can be either a subsystem or a suprasystem; that is a subsystem to a larger one or a suprasystem that consists of different systems. Banathy (1968, p. 12) provided the following definition for a system:

> *Systems are assemblages of parts that are designed and built by man into organised wholes for the attainment of specific purposes. The purpose of a system is to realize through processes in which interacting components of the system are engaged in order to produce a predetermined output. Purpose determines the process required, and the process will imply the kinds of components that will make up the system. A system receives its purpose, its input, its resources, and its constraints from its suprasystem. In order to maintain itself, a system has to produce an output which satisfies the suprasystem.*

Svenson and Wallace (1989) indicate that the failure of the solutions that organisations have applied to performance problems is a consequence of using partial solutions involving training, reorganisation, participative management, management by objectives, and so forth. They emphasise the use of a systems solution that involves a combination of elements such as: organisation structure, job design, feedback and information systems, workflow, selection systems for personnel and training.

As noted before, employees are understood to work within a system in which many internal and external factors affect their performance (Rummler and Brache, 1995; Stolovitch and Keep, 1999; Fuller and Farrington, 1999; Spitzer, 1999). Therefore, the use of systems approach is essential to HPT in order to achieve improved performance as it calls for consideration of a systems solution rather than a solution at a sub-system level.

2.3.4.2 HPT and Learning Psychology

It is generally agreed that HPT stems from the work of a number of behavioural psychologists, who began in the 1950s to experiment with creative methods of enhancing learning. Their work led to new perspectives on how learning takes place. Many learning psychologists, who are concerned with perspective theory, see that the efficiency and effectiveness of instruction depend on how information is structured, presented, and received by the learner (Rosenberg *et al.*, 1999).

Amongst the most notable behavioural psychologists is B. F. Skinner, who proposed the revolutionary idea that learning could be enhanced significantly through small-step instruction coupled with extensive feedback (Skinner 1954, 1958). His research in operant conditioning and animal learning led him to suggest that human learning could be positively influenced by the careful control of reinforcement for desired behaviours. Skinner (1954) notes that the learning process needs to be divided into "a very large number of very small steps and reinforcement must be contingent upon the accomplishment of each step." He noted, also, in his article that a single teacher cannot individually and appropriately reinforce thirty or more students at the same time. He conceptualised a teaching machine for the classroom for use by individual students. This machine used a format known as Programmed Instruction and the

machine could present information, reinforce appropriately and then move to the next level of difficulty depending on the individual's performance. The Programmed Instruction format was characterised by clearly stated behavioural objectives, small frames of instruction, self-pacing, active learner response to inserted questions, and immediate feedback to the correctness of the response. Skinner's behavioural cause-and-effect discoveries led to a series of developments, from the teaching machine of the 1950s to the design process for programmed instruction of the early 1960s and onward to the computer-assisted instruction of the 1960s and 1970s (Deutsch, 1992). Further research in the area of programmed instruction led to the concepts of instructional feedback and reinforcement (Rosenberg *et al.*, 1999).

Later, in 1961 and 1962, Thomas F. Gilbert who was a former student of Skinner's, published the two volumes of the *Journal of Mathetics* (only these two volumes of the journal were published) in which he laid the foundation for what was later on known as the discipline of instructional technology or instructional systems design (ISD). In 1962, many of the behavioural psychologists and educators who had contributed to the *Journal of Mathetics* came together and formed the Programmed Learning Society in February 1962. On April 1962, the name of the society was changed to the National Society for Programmed Instruction – NSPI (Dean and Ripley, 1998). Those physiologists and educators got together to share ideas about how principles in behavioural psychology might best be employed to develop programmed instruction (Westgaard, 1992).

Within a decade between the 1960s and the 1970s the new discipline began to emerge in the literature through publications and meetings of academics and practitioners from different professional societies and universities, and the use of a systematic approach to creating and delivering instruction has been known as

instructional technology or instructional systems design – ISD (Rosenberg *et al.*, 1999).

2.3.4.3 HPT and Instructional System Design

Seels (1989) reviewed the instructional design movement in educational technology. He stated that the systems approach to designing instruction was introduced by James Finn in the early 1960's. In 1962, Robert Glaser coined the term *instructional system* and explored its components (Glaser, 1962). Also in 1962, Robert Gagne elaborated on the analysis of learning objectives and provided some works that relate different classes of learning objectives to appropriate instructional designs (Gagne, 1962). Building on the principles of the systems approach that Skinner explored in programmed instruction, he introduced the idea of task analysis to instructional design.

The work of Skinner and other behavioural psychologists is considered to be a significant contribution to the systematic process that includes programmed instruction, task analysis, behavioural objectives, and criterion-referenced evaluation (Reiser, 1987). The task analysis phase is critical in the systematic process of instructional systems design as instructional technologists need to identify what they intend to teach people to do before they design instruction. The behavioural objectives (the outcomes of instructions) should be designed to be identifiable, observable and measurable. The shift from norm-referenced testing to criterion-based testing was noted in the 1960's. Criterion-referenced evaluation is used to evaluate the outcomes of instruction and prove that learning took place.

Researchers and practitioners in the field of ISD used the above concepts to describe a generalised systematic model for the ISD field known as ADDIE:

analysis, design, development, implementation, and evaluation. In fact, most of the ISD models nowadays use the ADDIE model as a foundation. Because instructional programmes depended on the analysis of a need and because instructional evaluations are used to reflect the degree to which instruction had met that need, it became obvious that a variety of needs could not be met through instructional programmes alone. In other words, learning did not always result in improved performance. A well-designed instructional programme is a very good tool to achieve improved skills and knowledge, but it becomes a poor tool to deal with availability of information, resources and/or incentives. Practitioners came to realise that a broader analytical paradigm was required. The broader paradigm should answer questions like: analysis of what? design, development, and implementation of what? evaluation of what? (Rosenberg *et al.*, 1999).

2.3.4.4 HPT and Analytical Systems

The realisations that training and education did not always provide solutions to performance problems made some learning psychologists and instructional technologists think of other strategies that might be more effective. Many of those learning psychologists and instructional technologists have identified analysis as the most important aspect of the performance improvement process. They have provided different labels for analysis: "front–end analysis" (Harless, 1970), "performance analysis" (Gilbert, 1978), "needs analysis" (Kaufman, 1982), "training needs assessment" (Rossett, 1987), "performance audit" (Rothwell, 1989), "performance assessment" (Robinson and Robinson, 1995), and "performance diagnosis" (Ruona *et al.*, 1997). They discuss needs assessment and performance analysis as means of determining appropriate solutions to performance problems and opportunities. The work of these people formed a large part of the foundation on which performance analysis and HPT are built.

Sleezer (1992) examined the perspectives of needs assessment that are described in the performance technology and human resource development literature.

Harless (1970) who came up with the term *front–end analysis* realised that when analysis is pushed forward, before an instructional programme takes place and in isolation of any perceived solution, it becomes possible to determine the most appropriate intervention to a particular performance problem. Harless and other researchers started to realise then that instructional technology was not the only solution available for performance problems and sometimes; instructional interventions may not result in improved performance in certain situations. They then brought the relationship between instructional and performance systems into proper perspective.

Rummler and Brache (1988) describe organisations as a collection of integrated systems that are influenced by variety of outside sources. They utilise a systems view of human performance and use organisational analysis to analyse performance problems. They use systematic analysis techniques to examine organisational structures and they found, as a result of their analysis, that individual performance is influenced by organisational performance and vice versa.

2.3.4.5 HPT and Cognitive Systems Engineering

Woods and Roth (1988, p. 415) define cognitive systems engineering as "an applied cognitive science that draws on the knowledge and techniques of cognitive psychology and related disciplines to provide the foundation for principle–driven design of person–machine systems". Their work demonstrated the importance of taking cognitive variables into account for system design, e.g., cognitive workload, attention and memory. One of the aims of cognitive systems

engineering is to understand how users, as individuals, as a group, and as an organisation, interact with their technological environment. In order to cope with the challenges and complexities that the new technology brings in the workplace, people often adapt either the technology or their way of using it in ways not anticipated by designers (Roth *et al.*, 1987; Cook *et al.*, 1990).

The field of cognitive systems engineering recognises that human performance should be studied and described with full recognition of the conditions under which the performance takes place. The advocates of the field emphasise the use of analysis and a systems approach in achieving improved performance. The recognition of the need to study human performance as a whole is not a new thing. Kurt Lewin, in 1942 wrote the following as a way of arguing that analysis should begin with the situation as a whole (Lewin, 1942; cited in Cartwright, 1951, p. 63; emphasis in the original):

> *What is important in field theory is the way the analysis proceeds. Instead of picking out one or another isolated element within a situation, the importance of which cannot be judged without consideration of the situation as a whole, field theory finds it advantageous, as a rule, to start with a characterization of the situation as a whole. After this first approximation, the various aspects and parts of the situation undergo a more and more specific and detailed analysis. It is obvious that such a method is the best safeguard against being misled by one or another element of the situation.*

Cognitive engineers link learning psychology with machines and measure success in terms of the human–machine interface and the resulting productivity.

2.3.4.6 HPT and Information Technology

The concepts of cognitive systems engineering deal with the interaction between human and machines. These efforts have positively affected the field of information technology. The use of information technology has had a great impact on the organisational and individual performance (Foshay, 1989). IT has

been used to develop job aids, computer databases, and computer based training. It has been used also to develop what is called Electronic Performance Support Systems (EPSS), which are systems developed based on linking training, information systems, computer applications and so on (Gery, 1989). Also, having access to just-in-time information through the Internet and intranets has a great impact on performance.

2.3.4.7 HPT and Ergonomics and Human Factors

Ergonomics and human factors is a science, which uses the knowledge of human abilities and limitations to design systems, job aids, machines and tools, for safe, efficient and comfortable human use (Rosenberg *et al.*, 1999). Ergonomics and human factors can be seen to have a direct relationship with disciplines of information technology and cognitive systems engineering. When ergonomists and human factors engineers ensure that the design of systems complies with the requirements of the users then they aim to improve human performance through design of systems that increase performance and/or reduce performance barriers. This indicates to human performance (HP) technologists that human performance can be enhanced through the proper applications of ergonomics and human factors. According to Shephard (1974, pp. 8-9), "Systems are examined to see (1) how their purpose can be achieved with minimum damage to either operator or machine, and (2) how their design may be improved to facilitate transfer of energy, materials or, information across the man-machine interface."

2.3.4.8 HPT and Psychometrics

According to Rosenberg *et al.* (1999, p. 31), psychometrics is "the measurement of human achievement and capabilities". It deals with predicting how a person is

likely to behave in the work place, in terms of attitudes, abilities, motivations and how the individual deals with stress. Such information is critically important for the employer, especially for the purpose of selecting the right people for jobs in terms of both new hires and promotions or reassignments (Leibler and Parkman, 1986). Ross (1986) showed how the involvement of behavioural technology in the personnel selection process helps preventing performance problems. Thus, psychometric techniques, for accurately predicting performance, have become important HPT tools.

2.3.4.9 HPT and Feedback Systems

Several researchers have demonstrated that feedback is a beneficial assessment and developmental tool. Ilgren, Fisher and Taylor (1979) conducted a study on the consequences of feedback on behaviour in organisations. They see feedback as an appropriate tool for improving performance. Tosti (1986) considers two purposes for using feedback systems. The first purpose is to affect the quantity of performance by getting people to maintain, do more of, or do less of something they are already doing. The second purpose of using feedback systems is to affect the quality of performance by getting people to change the way they do something or to do something entirely different. To achieve these purposes, Tosti (1986) ties the characteristics of the feedback to be given to who gives it, what performance need to be affected, and when and where the feedback is given. Researchers have found that feedback offers a number of improvements, especially increasing job performance and communication skills.

Clearly, feedback is a critical tool for maintaining or changing performance, and therefore it has a great effect on HPT. A lot of HPT interventions use feedback as a critical tool for improving performance.

2.3.4.10 HPT and Organisational Development and Change

Organisational development (OD) is a management field that has a significant impact on organisations. It uses many interventions to develop the organisations and its people. The interventions OD uses include organisational design, team building, culture change, leadership, strategy development, and management systems. The field makes its practitioners consistently look for opportunities to improve human performance and focus on humanistic rather than behaviouristic strategies (Rosenberg *et al.*, 1999).

Beer and Walton (1987) looked at organisational development from many perspectives. They perceived OD as general management, creation of an adaptive organisation, human resources management, and implementation of change. Each of these perspectives has impact on improving the performance of the organisation and its people. From the first perspective where OD is viewed as general management, the HP technologist must understand how to manage and change the culture of the organisation. Also, true leadership is considered as an effective vehicle for change in organisational performance. From the second perspective, in which OD is seen as creation of an adaptive organisation, the component of organisational redesign becomes very important. If organisations adopt innovative, responsive and flexible organisational structures, they become more adaptive and they are more likely to respond to HPT-related changes and enhance the workers' performance. OD as human resource management, as viewed from the third perspective, uses human resource functions such as, compensations, benefits, labour relations, and motivation to improve human performance in the work place. The fourth perspective, in which OD is viewed as implementation of change, focuses on how to make change happens. Change is a vital process for HPT. In order to achieve improved performance, a change process must happen.

Having explored the influence of organisational development and change on HPT, some researchers note some of the constraints of OD. With organisational development, companies seek to refurbish their entire organisations from top down, drawing all levels of employees together to work toward unified goals. With human performance technology, companies seek to improve themselves from the bottom up, with productivity problems being tackled individually. Beer and Walton (1987) see that the OD field needs to look at a broader array of interventions, moving away from consultant-centered interventions. Miner (1982, p. 452) states:

> *The various organisation development technologies demonstrate considerable capacity to change organisation and on occasion to yield greater effectiveness, too. Still, there is a great deal that is not known. Further advances in this area seem to await the new development of some new theory. At the moment organisation development practice appears to have outstripped its theoretical origins.*

2.3.4.11 HPT and Intervention Systems

Interventions, referred to by practitioners as strategies, tactics or human resource functions, are responses and recommendations to identified causes of human performance problems and/or to opportunities for improving performance. When HP technologists analyse performance problems (or performance improvement opportunities) and their causes, they aim at designing, developing and implementing appropriate interventions to bridge the causes of performance problems or response to performance improvement opportunities. Interventions can have a combination of different components. These components include training and education, job design, job aids, feedback systems, incentives and rewards, selection and staffing, performance measurement, teambuilding, and environmental engineering.

Powers (1999) reviewed the critical elements of a successful intervention. He summarised these elements as executive leadership, management's commitment, rationale for change, rigorousness and comprehensiveness, availability of resources, communication, willingness to support the change, and effective management and execution of implementing the change. Addison and Johnson (1997) developed a performance architecture map model that could be used to classify where a particular performance issue exists and then what is the most likely appropriate type of intervention that can be used. Also, they emphasise that in order for any intervention to be successful, it must be aligned with the internal culture of the organisation.

2.3.5 Underlying Assumptions of HPT

HPT carries with it a number of underlying assumptions. These have been well articulated by Geis (1986) and remain largely true today. These underlying assumptions are summarised as follows:

1. Human performance is lawful in the sense that human behaviour is caused by certain factors and therefore it can often be predicted and controlled.

2. Our understanding of the causes of human behaviour is limited, and thus HPT must rely on practical experience as well as upon research findings.

3. HPT draws from research in a variety of disciplines such as psychology and sociology and at the same time, it generates its own body of knowledge.

4. HPT is the result of a number of knowledge sources: cybernetics, systems theory, communications theory, information theory, media, behavioural

psychology, management science, and, more recently, the cognitive science and neuroscience.

5. HPT uses a general systems model to represent the Human Performance System (HPS) using five components: The performer (component 1) which is required to process a variety of inputs (component 2). For each input there is a desired output (component 3) and for each output there is a resulting set of consequences (component 4) that need to be communicated to the performer as feedback (component 5). See figure 2.1.

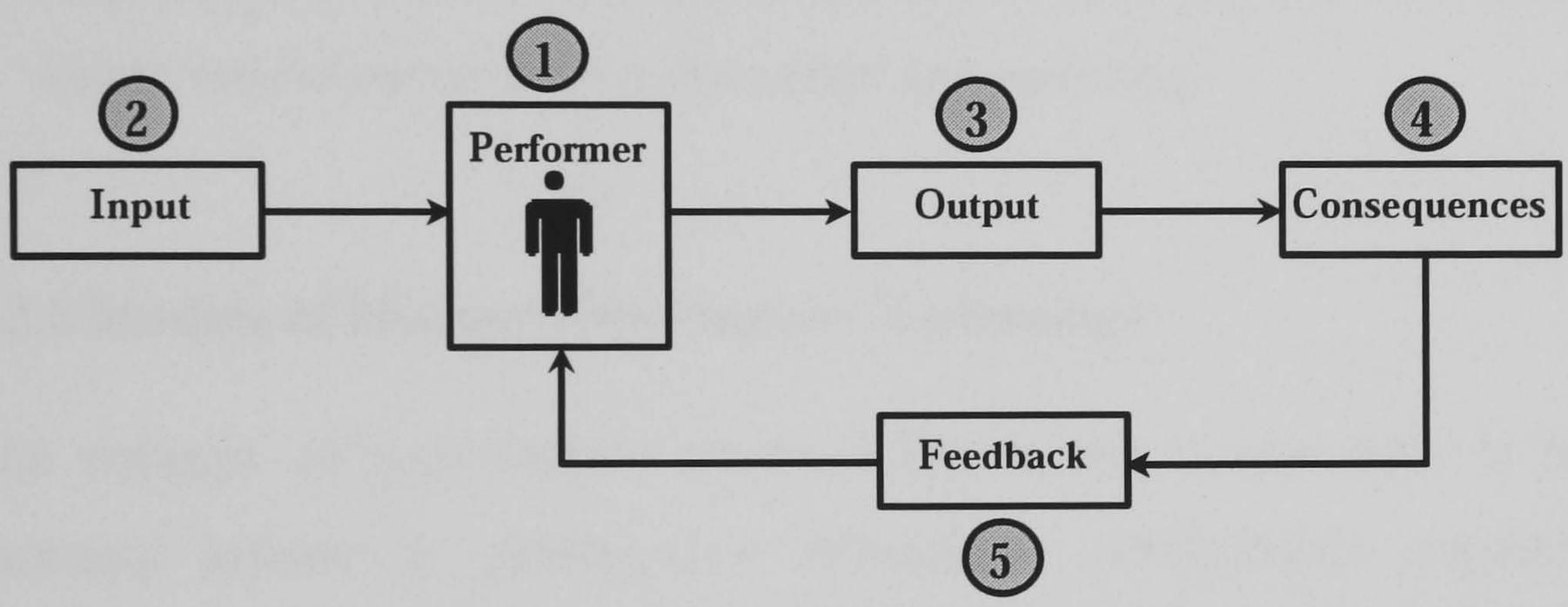

Figure 2.1 The Human Performance System (HPS)

6. Despite its early links with programmed instruction, HPT is not committed to a particular delivery system or technique.

7. HPT is not restricted to a specific population or subject matter area. It can address any human performance.

8. HPT involves the following key activities:
   - identifying needs,
   - analysing performance,
   - developing interventions,

- implementing interventions,
- reviewing and evaluating interventions, and
- measuring performance.

9. HPT is empirical. It systematically verifies the results of both its analysis and intervention efforts for the purpose of building self-correction mechanisms at each step of the prescribed process.

10. HPT is evolving. Because HPT is based on guiding principles, (e.g., it emphasises empirical data and it has built-in self-corrective mechanisms) it allows enormous scope for innovation and creativity.

2.3.6 Models of Human Performance Technology

The concept of performance improvement is not a new one. It has been variously known as performance technology, performance engineering or performance consulting. A number of writers have come up with many models with regard to human performance improvement within the organisation. For the purpose of this research, models developed by some of HPT's key proponents are explored. These models are Gilbert's behaviour engineering model (Gilbert, 1978), Brethower's total performance system model-TPS (Brethower, 1982), Harless' performance improvement process model-PIP (Harless, 1990), Kaufman's strategic planning model (Kaufman, 1992), and Rummler's three levels model (Rummler and Brache, 1990). You can refer to appendix A for illustrations of these models.

2.3.6.1 Gilbert's Behaviour Engineering Model

Gilbert (1978) developed his behaviour engineering model, which is used as a technique to improve employee performance from an average or below average level to exemplary level. His model focuses on fixing the environment in which the employee works instead of changing the employee. Gilbert's behaviour engineering model identified six factors that influence performance. The first three critical factors relate to the work environment and they are information, resources and incentives. The other three factors relate to the performer and they are knowledge, capacity and motives. Gilbert's (1978) behaviour engineering model is shown in figure A.1 in appendix A.

Gilbert's model plays a critical role in the analysis and evaluation of performance. In order to ensure that all employees at different levels are actually working towards the organisation's goals, Gilbert (1978) emphasises that accomplishments at all levels of the organisation should be identified and measured. Gilbert (1978) indicates that in order to identify the performance at any level, the context at a higher level needs to be identified and understood. He lists six different contexts for analysing performance: philosophical, cultural, policy, strategic, tactical, and logistical. The philosophical context describes the ideals under which the organisation operates. The cultural context defines the larger environment in which the organisation exists. The policy context states the missions that define the purpose of the organisation. The strategic context explains the plans designed to carry out the missions. The tactical context defines the specific duties that achieve the strategies. Finally, the logistical context that identifies the organisational support system that enables the employees to carry out duties, such as information, resources, and incentives.

Gilbert (1978) developed also the PROBE model which is a set of questions that when answered will help identify barriers to exemplary performance. The

questions in the PROBE model, which can be answered yes or no, are divided into nine categories. The first six categories, which relate to the work environment, are: directional data, confirmation (feedback), tools and equipment, procedures, resources, and incentives. The other three categories, which relate to the performer, are: knowledge and training, capacity and motives. Gilbert's (1978) PROBE model is shown in figure A.2 in appendix A.

2.3.6.2 Brethower's Total Performance System Model

Brethower (1995) characterises the theoretical structure of HPT as derived from the principles of general systems theory and psychology. He came up with the Total Performance System (TPS) model, which helps identify the critical features of all employees' roles and interrelate different organisational operations through internal and external feedback in relation to the improvement of organisational performance. In his TPS model, shown in figure A.3 in appendix A, he applied general systems theory to analyse organisational and individual performance in terms of seven basic categories of variables:

1. Mission (a performance system's major purpose or reason for being)
2. Inputs (information, technology, people, money, or materials that initiate or are resources for a work process)
3. Processing system (a system that processes inputs, generating at least one output valued by an external receiver)
4. Internal feedback (information – about the performance of individuals, work groups, or processes – that is used to guide performance)
5. Outputs (information, money, material, or added value that is produced by a work task or process)
6. Receiving system (a set of systems that are closely linked to a processing system and that receive its outputs)

7. External feedback (information-from customers and other external sources-that is used to guide performance)

He goes on to cite five basic principles from psychology as the prescriptive basis for the design of effective interventions:

1. B = *f*(P,E): Behaviour is a function of interactions between the person and the environment.
2. Situational Learning: Behaviour is influenced by the situation in which it occurs.
3. Conceptual Learning: Conceptual learning requires direct interaction, with multiple examples.
4. Motivated Performance: Performance will continue if and only if it leads to something valued by the performer.
5. Intelligent Performance: Intelligent performance requires feedback.

2.3.6.3 Harless' Performance Improvement Process Model – PIP

Joe Harless who came up with the term *front–end analysis* emphasises the use of rigorous and systematic analysis before addressing a solution to a performance problem. The rigorous and systematic analysis leads to identifying the causes of a particular performance problem, which in turn dictate the solution that is, in most situations, other than training (Harless, 1970). Harless' performance improvement process (PIP) model, shown in figure A.4 in appendix A, includes the steps of: front-end analysis, preparing objectives, analysing the objectives, preparing the intervention, testing the intervention, and follow-up (Harless, 1990). Harless (1970) groups the interventions under four headings: selection interventions, skills/knowledge interventions, environmental interventions, and motivation/incentives interventions.

Front-end analysis is considered to be the most important phase in the PIP model. Harless defines front-end analysis as "all the smart things a manger, trainer, or consultant does before addressing a solution to a human performance problem" (cited in Ripley, 1997, p. 97). According to Harless (1990), the front-end analysis skill is what differentiates a true performance improvement professional from someone who is not. Front-end analysis can be applied to an existing performance problem or to a new performance opportunity. Harless' (1970) front-end analysis model is shown in figure A.5 in appendix A.

2.3.6.4 Kaufman's Strategic Planning Plus Model

Kaufman (1972) called for societal contribution and considered it to be vital to organisational success. Kaufman and Watkins (1996) define a framework for strategic planning that identifies a societal-oriented level (mega level) of strategic planning which they termed "strategic planning plus". Kaufman's strategic planning plus framework, shown in figure A6 in appendix A, considers the society as the primary client and emphasises that society and clients alike are both served well.

Kaufman (1994) defines *need* as the gap between current and desired results. His framework takes a proactive, end-results planning approach that identifies and addresses performance gaps in results at three levels. The first level is the mega (societal) level, which applies to the society and addresses the ethical and social aspects of performance. The second level is the macro (organisational) level, which applies to the organisation itself. The third level is the micro (individual) level, which applies to the individual and small groups within the organisation. The framework calls for integrating and linking achievements at three levels: societal, organisational, and individual/small group. Strategic objectives are set

in a way that drives operational objectives, which in turn should be used to develop detailed objectives and related means for delivery (Kaufman, 1994).

Kaufman (1994) refers to the identification of the gaps between current and desired results, as "needs assessment". After identifying the performance gaps at the three levels, he uses another process called "needs analysis" in order to identify what causes these performance gaps and hence uses the "analysis process" as the basis for selection and implementation of appropriate intervention(s) to close those performance gaps. The interventions are selected in a way that will add value, both to the organisation and to society. The mega-level is what Kaufman suggest is missing from the conventional processes of strategic planning, needs assessment, quality management, benchmarking, and reengineering. He refers to adding this mega level to these processes as the "Plus" factor (e.g. "Strategic Planning Plus"). He identifies six critical success factors for implementing strategic thinking and planning: 1) moving towards a larger scope of thinking, planning, action and delivery of continuous improvement, 2) focusing on end results rather than means, 3) thinking on all three levels, 4) starting with an ideal vision that identifies, in measurable terms, the kind of world we want to create for the future, 5) preparing objectives at all levels, and 6) defining the term *need* as the gap between current and desired or required results (Kaufman, 1983; Kaufman, 1992; Kaufman and Watkins, 1996; Kaufman, 1998).

2.3.6.5 Rummler's Three Levels Model

Rummler and Brache (1988) adopt a systems view of human performance and describe organisations as a collection of integrated components. Rummler and Brache (1990) identify three levels of performance within organisations that influence each other: organisational, process, and individual (job/performer)

performance levels. At each performance level, they identify three performance needs: goals, design, and management. For example, at the organisational performance level, the three performance needs are organisational goals, organisational design, and organisational management. Their performance improvement model, shown in figure A.7 in appendix A, captures the functions visible on the organisational chart and the processes that cross the "white space" across all functions. To solve performance problems at the three levels, they came up with a 14-step performance improvement process that consists of five phases: performance improvement planning, organisational improvement, process improvement, job improvement, and process management (see figure A.8 in appendix A). The process identifies the tools and deliverables of each phase, which lead to the completion of the next one (Rummler and Brache, 1990).

In addressing the individual (job/performer) performance level, Rummler and Brache (1990) identify six factors that affect the human performance system: (1) performance specifications in terms of desired outputs and performance standards, (2) task support in terms of required inputs and resources, (3) consequences that support efficient goal achievement, (4) feedback in terms of providing employees with relevant, timely, accurate, specific, and understandable information about their performance, (5) skills and knowledge required for the job, and (6) individual capacity in terms of physical, mental, and emotional ability to perform the job.

2.3.6.6 Tosti and Jackson Organisational Scan Model

Tosti and Jackson (1996; cited in Dean and Repley, 1997) propose a systems-based performance improvement model that covers three levels: people, work, and the organisation as a whole. It views any company as work that is being

performed by people within an organisation. The model is named as "the organisational scan" (see figure A.9 in appendix A). It views the organisation as a system in which the inputs, conditions, processes and outcomes are considered at the three levels. The model recognises that changes in one component of the system have impact on the rest of the system. It also recognises that interventions in one component of the system can have positive impact on the other components of the system. Organisational, personnel, and work performance factors can have influence on the different components of the overall system. They affect the conditions under which people work, the processes they follow, and the outcomes they produce. Figure A.9 in appendix A shows how inputs, conditions, processes, outcomes, and receivers interact with organisational, work, and personnel factors.

Tosti and Jackson (1989), in another framework named "organisational alignment model", consider two interdependent, complementary paths for providing direction to move from organisational mission and vision to specific organisational results (see figure A.10 in appendix A). The first path is the strategic path, which focuses on what has to be done: the strategic goals to be achieved in support of the mission and vision, the specific objectives that need to be accomplished to meet those strategic goals, and the tasks to be conducted to meet the specific objectives. The second path is the cultural path, which focuses on how things should be done: the values implied by the mission and vision statements, the specific practices that exhibit those values, and the individual behaviour that will demonstrate and represent those values and practices to others inside and outside the organisation. Both paths, the strategic and cultural paths, interact with the external environment and stakeholders. The two paths are supported by the organisation's infrastructure: the organisational structure, systems, processes, and policies (Tosti and Jackson, 1989).

2.4 Work Motivation

2.4.1 What is Motivation?

Many contemporary authors have defined the concept of motivation. Motivation has been defined as: the psychological process that gives behaviour purpose and direction (Kreitner, 1995); a predisposition to behave in a purposive manner to achieve specific, unmet needs (Buford, Bedeian, and Lindner, 1995); an internal drive to satisfy an unsatisfied need (Higgins, 1994); and the will to achieve (Bedeian, 1993).

More specifically, what is work motivation? Pinder (1998) suggests that motivation is a set of internal and external forces that stimulate work-related behaviour. Motivation can determine work related behaviour form, direction, intensity, and duration. The definition embraces two forces (1) environmental (reward system, nature of the work performed) and (2) forces inherent in the individual (personal needs and motives). A feature of the motivation definition is that it is viewed as an invisible, internal, hypothetical construct. We can neither see motivation nor measure it; instead we utilise theories to measure the observable manifestations of work motivation. Table 2.5 displays definitions of motivation by a number of authors.

Motivation continues to be an important issue in psychology. Psychologists and other behavioural scientists have given greater importance to concepts like need, motive, goal, incentive and attitude than concepts of aptitude, ability and skill (Vroom, 1995). Employee motivation depends on the characteristics of the person, job, and environment as these characteristics influence behaviour and job performance and therefore motivation is considered to be a dynamic trait because it may change with changes in characteristics of the person, job, and/or environment (Wiley, 1997).

In this section, we examine the issue of motivation by providing a critical review of this complex field by examining traditional motivation theories and recent thoughts in the field.

Table 2.5 Definitions of Motivation

Definition	By whom
"Motivation is the term used to describe those processes, both intrinsic and rational, by which people seek to satisfy the basic drives, perceived needs and personal goals, which trigger human behaviour"	(Cole, 1995)
"the study of all those pushes and prods - biological, social and psychological - that defeat our laziness and move us, either eagerly or reluctantly, to action."	(Miller, 1962)
"the process whereby goal-directed behaviour is instigated and sustained."	(Schunk, 1990, p. 3)
"The driving force within individuals that impels them to action."	(Schiffman *et al.*, 1997, p. 90)
"An inner state that energises, activates, or moves and that directs or channels behaviour toward goals."	(Assael, 1995)
"The force that energises behaviour, gives direction to behaviour, and underlies the tendency to persist."	(Bartol and Martin, 1998)
"Motivation energises behaviour; when we are motivated, whether we be hungry or curious, we are aroused and restless and, Motivation directs our activity towards an appropriate goal; when we are thirsty we search for water etc"	(Sharpe and Ross, 1987)
"The willingness to exert high levels of effort to reach organisational goals, conditioned by the effort's ability to satisfy some individual need".	(Robbins *et al.*, 1977, p. 533)
"Getting the best out of people"	(Everard and Morris, 1990)

2.4.2 Theories of Motivation

Theories of motivation are classified into two categories: content and process theories (Gibson *et al.* 1991). Content theories are those that focus on **what** factors within the individual that energise, direct, sustain, or stop behaviour. They try to identify the specific needs that motivate individuals. Process theories are those that describe, explain, and analyse **how** to energise, direct, sustain, or stop behaviour. Both types of theories have important implications for managers. Managers need to be aware of what are the different factors that motivate their employees as different individuals have different needs, desires, and goals. They also need to understand the process of motivation and how each individual is

motivated based on his or her preferences, rewards, and accomplishments. The most popular content and process theories will be discussed here. The content theories to be discussed are: Maslow's need hierarchy, Alderfer's ERG theory, Herzberg's two-factor theory, and McCelland's socially acquired needs theory. The process theories to be discussed are: Skinner's reinforcement theory, Vroom's expectancy theory, Adams' equity theory, and Locke's goal setting theories.

2.4.2.1 Maslow's Need Hierarchy Theory

Maslow's theory assumes that an individual's needs depend on what he or she already has. According to Maslow (1943, 1954), human needs, which are organised in a hierarchy of importance, are physiological, safety, belongingness, esteem, and self-actualisation. That is, an individual attempts to satisfy lower level needs (e.g. physiological) before he or she directs behaviour towards satisfying upper level needs (e.g. self-actualisation).

Maslow's theory can be understood in the context of how an organisation satisfies the needs of its employees as follows: physiological (pay, benefits, working conditions), safety (insurance, retirement plans, job security, safe and healthy working conditions, fair treatment), belongingness (memberships, organised employees activities), esteem (status, recognition, promotions), and self-actualisation (challenge, career development opportunity). Maslow made three assumptions. First, all behaviour is based on the attempt to satisfy human needs. Second, needs are arranged in a hierarchy of five levels and move from bottom to top. Third, a satisfied need is not a motivator.

Maslow's theory has been criticised as it has not been supported by field research studies. Maslow conducted his study on blue-collar workers who are understood

to be trying to survive. To generalise the findings, the study needs to by supported by lot of empirical research work on different types of respondents (Bristow and Mowen, 1998). "Maslow's need hierarchy theory has been a primary theory of motivation in industrial and organisational psychology for some time, but almost all empirical evidence, as in this instance, has disconfirmed the theory" (Rauschenberger *et al.*, 1980). Also, evidence shows that individuals operate in a number of different levels at the same time without necessarily fulfilling one need level before moving to the higher one (Alderfer, 1972).

2.4.2.2 Alderfer's ERG Theory

Clayton Alderfer reworded Maslow's theory and proposed a need hierarchy of three sets of needs: existence (E), relatedness (R), and growth (G). His theory is called ERG theory (Alderfer, 1972). Alderfer's ERG theory corresponds to Maslow's theory in that the existence needs are similar to Maslow's physiological and safety and security categories; the relatedness needs are similar to Maslow's belongingness, social and love category; and the growth needs are similar to Maslow's esteem and self-actualisation categories.

The assumptions of Alderfer's ERG theory are quite different from Maslow's need hierarchy theory. First, all three needs may be operating at the same time and there is not a rigid stair step progression, as in Maslow's theory. Second, if satisfaction of a higher level need is not achieved (frustration), the desire to satisfy a lower level need increases (regression). Third, higher-order needs become more important as they are satisfied rather than less important or not considering a satisfied need as a motivator (Alderfer, 1969, 1972).

Similar to Maslow's theory, there have been not many research studies which favour of Alderfer's ERG theory and empirical verification cannot be claimed for it (Bristow and Mowen, 1998).

2.4.2.3 Herzberg's Motivation-Hygiene Theory of Job Satisfaction

In 1959, Herzberg, Mausner, and Snyderman published their book *The Motivation to Work* in which they proposed two sets of factors that affect job satisfaction. They categorised the first set of factors as those, which are related directly to the job (intrinsic factors) and act as sources of job satisfaction (motivators). They identified these motivator (intrinsic) factors as recognition, achievement, the possibility of growth, increased responsibility, and the job itself. The second set of factors is related to the job conditions (extrinsic factors) and their absence or misuse act as sources of job dissatisfaction (hygienes). These hygiene (extrinsic) factors were identified as working conditions, company policy and administration, relations (with the supervisor, peers, and subordinates), and pay. They theorised that improving hygiene factors only causes the removal of job dissatisfaction but it does not necessarily cause job satisfaction. Job satisfaction is the result of the presence of the motivator factors (Herzberg *et al.*, 1959).

Maidani (1991) tested Herzberg's theory of job satisfaction on two different working populations (private and public sector employees). He found that employees of both sectors rated motivator (intrinsic) factors as important, but public sector employees rated hygiene (extrinsic) factors as more important than private sector employees did. He concluded that both the motivator factors and the hygiene factors were sources of satisfaction rather than dissatisfaction – in contrast to Herzberg's study, which found the hygiene factors as sources of dissatisfaction.

Vinokur-Kaplan, Jayaratne, and Chess (1994) investigated the impact of workplace conditions and motivators on the job satisfaction and retention of social workers in three different types of agencies: public agencies, non-profit agencies, and private agencies. They found opportunities for promotion and job challenge were the most important factors influencing the job satisfaction of workers in non-profit and public agencies. Research has demonstrated that striving for achievement is positively associated with sales performance and job satisfaction (Bluen, Barling, and Barns, 1990).

2.4.2.4 David McClelland's Socially Acquired Needs Theory

David McClelland's socially acquired needs theory suggests that people are affected by needs that are learned from the culture of a society and, therefore, these needs vary in intensity according to one's childhood and life experiences. According to McClelland (1961, 1962, 1975), these needs are categorised in three sets of needs: need for achievement, need for affiliation, and need for power. He further indicates that a person with a strong need will be motivated to use appropriate behaviours to satisfy that need. He also mentions that these needs could be learned and acquired, and hence they can be developed. According to McClelland, only one set of these needs is operative as a motivator at any one time. Each of the three sets of needs resemble some needs discussed by Maslow. For example, the ³need for power´ is similar to esteem need in Maslow's theory because it concerns with people and status. Affiliation resembles what Maslow called love or belongingness. Achievement could be related to self-esteem or self-actualisation.

People who strive to accomplish difficult but feasible goals and who require feedback about their personal performance, such as scientists and engineers, are motivated by the ³need for achievement´. Those who work to establish and

maintain relationships with others, such as those in social works, are motivated by the ³need for affiliation´. And, those who want to influence the activities and thoughts of others, such as executives, managers and officers, are motivated by the ³need for power´.

2.4.2.5 Skinner's Reinforcement Theory

Skinner's reinforcement theory (Skinner, 1969) has its roots in Skinner's (1938) operant conditioning, which was discussed in section 2.3, and Thorndike's (1913) law of effect. The theory takes a behaviour reinforcement approach to work motivation by assuming that the causal agents of human action are found in the functional relationship between environmental variables (reinforcers) and the behaviour they affect (Komaki *et al.*, 1996). The implications of this, in organisational behaviour, is that managers need to specify (a) the occasion upon which desired employee behaviour occurs (antecedents of behaviour), (b) the behaviour itself, and (c) the consequences of the behaviour; these contingencies are referred to in the literature as antecedent-behaviour-consequence (Luthans and Kreitner, 1985). There are two types of reinforcement: positive and negative reinforcements. It is expected that if the desired behaviour is followed by some reward, the person will be motivated to repeat that behaviour (a positive reinforcers), while if an undesired behaviour is followed by some punishment, the person will be motivated to not repeat that behaviour (Alexander and Fred, 2003).

So, reinforcement theory emphasises the relationship between behaviour and its consequences (Rogers and Skinner, 1956; Skinner, 1969). Alexander and Fred (2003) indicate that money, feedback, and social recognition each has a significant impact on task performance, and when the three reinforcers are used in combination, they produce a stronger effect on task performance.

2.4.2.6 Vroom's Expectancy Theory of Motivation

The expectancy theory of motivation was developed by Vroom (1964) and later on expanded and refined by Porter and Lawler (1968). This theory predicts that the motivation of an individual to exert an effort towards a particular goal depends on the integration of three factors: expectancy, instrumentality, and valence. The first factor "expectancy" refers to the employee's estimate of the probability that a specific effort will result in achieving a particular level of performance. This is based on the belief of employees that there is a positive relationship between effort and performance. If this belief is not there, employees will not feel motivated to exert much effort towards achieving any performance. The second factor "instrumentality" refers to the employee's estimate that the achieved performance will result in some reward for him or her. If the employee does not perceive that there is a positive relationship between improved performance and reward, then he or she will not be motivated to exert much effort towards improving performance. The third factor "valence" refers to the extent to which the employee values the reward. So, according to Vroom (1964), motivation is the product of these three factors. That is:

$$\text{Motivation} = (\text{Expectancy}) \times (\text{Instrumentality}) \times (\text{Valence})$$

$$M = E \times I \times V$$

Many researchers have tested the expectancy theory. Van Eerde and Thierry (1996), for example, reported seventy-seven empirical studies, conducted prior to 1990 that test expectancy theory. Van Eerde and Thierry (1996) and Ambrose and Kulik (1999) indicate that the empirical research conducted to test the expectancy theory suggests the use of simple main effect models rather than multiplicative models.

2.4.2.7 Adams' Equity Theory

Adam's equity theory of motivation assumes that employees compare their efforts and rewards with those of others in similar work environment and consequently they change their behaviour to reduce their perceived inequity (Adams, 1963). Thus, the theory suggests that perception of fairness (equity) is a major motivational factor that can influence the behavioural and affective responses of employees (Adams, 1963, 1965). Employee efforts include intelligence, experience, knowledge, skills, actions needed towards task fulfilment. Job rewards, on the other hand, include money, job-related responsibilities, esteem, status, and social identity (Adams, 1964).

Janssen (2000) finds a positive relationship between job demands and innovative work behaviour when employees perceived effort-reward fairness rather than under-reward unfairness. Janssen (2000) finds that managers who perceive themselves to be fairly rewarded for their efforts appear to respond more positively to intermediate demand levels than managers who perceive themselves to be under-rewarded by their organisation.

2.4.2.8 Locke's Goal Setting Theory

Locke's goal setting theory suggests that an individual's goals and intentions are the main determinants of behaviour as the goals of a person direct his or her thoughts and actions (Locke, 1968). The theory emphasises the factors that influence goal striving and focuses on the relationship between goals and work behaviour in a way that goal setting produces high performance (Locke and Latham, 1990). Specific difficult goals consistently produce better performance than specific easy goals, general goals, or no goals, especially when they are supported by feedback showing progress toward the goal (Latham and Locke,

1991; Locke, 1996). Locke's goal setting theory received substantial support for its basic principles (Ambrose and Kulik, 1999).

Latham and Locke (1991) and Locke (1996) argue that goal commitment is critical when goals are specific and difficult. Locke (1996) finds that participation and self-set goals enhance goal commitment. He also finds that self-efficacy influences both the difficulty of the goal accepted, and commitment to the goal. Wiley (1997) argues that acceptance of the goal assignment by the employee and provision of performance feedback by his/her manager as two critical preconditions for arriving to a positive relationship between goals and performance. He further indicates that research findings suggest that task demands, self-efficacy, goal commitment, and task orientation are important determinants of the effectiveness of goal setting methods. Rasch and Tosi (1992) find both perceived goal difficulty and perceived goal clarity have positive effects on reported effort, which in turn is positively associated with self-reported performance. Researchers see feedback (Earley *et al.*, 1990) and clarity of goals (Wright, 1990) as moderators to the goal difficulty-performance relationship. Also, self-set goals and self-efficacy are found to play important roles in determining performance as they engender high commitment (Hinsz *et al.*, 1997).

2.4.2.9 The Theory of Reasoned Action

The Theory of Reasoned Action was first developed in 1967 by Ajzen and Fishbein. The theory aims to predict and understand motivational influences on behaviour. It proposes that an individual's behaviour is determined by the individual's behavioural intention (BI) to perform that behaviour, which provides the most accurate prediction of behaviour (Fishbein and Ajzen, 1975). Ajzen and Fishbein (1980, p. 117) note that the theory of reasoned action is based "on the

assumption that human beings usually behave in a sensible manner; that they take account of available information and implicitly or explicitly consider the implications of their actions". They further mention that the "theory postulates that a person's intention to perform (or not perform) a behaviour is the immediate determinant of that action. Barring unforeseen events, people are expected to act in accordance with their intentions" (Ajzen and Fishbein 1980; p. 117).

Behavioural intention is influenced by two factors: one's attitude toward the behaviour (A) and Subjective Norm (SN). Attitude toward the behaviour is defined as "a person's general feeling of favorableness or unfavorableness for that behaviour" (Ajzen and Fishbein, 1980). Attitude toward behaviour is a function of the product of one's salient belief that performing the behaviour will lead to certain outcomes, and an evaluation of the outcomes. Subjective Norm is defined as a person's "perception that most people who are important to him think he should or should not perform the behaviour in question" (Ajzen and Fishbein, 1980). Subjective Norm is a function of the product of one's normative belief (NB) which is the "person's belief that the salient reference thinks he should (or should not) perform the behaviour" (Ajzen and Fishbein, 1980), and his/her motivation to comply with that referent.

It has been found that the theory of Reasoned Action works successfully only when applied to behaviours that are under a person's volitional control (Ajzen, 1985). If behaviours are not fully under volitional control, then the situation is different. It can happen that a person may be highly motivated by his/her own attitude and subjective norm, but he/she may not actually perform the behaviour due to dominant environment conditions. To deal with this problem, Ajzen (1985) modified the Theory of Reasoned Action by including a third antecedent of behavioural intention called "perceived behavioural control". The perceived

behavioural control predicts both behavioural intention and behaviour. He named the modified model as the "Theory of Planned Behaviour". Perceived behavioural control is defined as "People's perception of the ease or difficulty of performing the behaviour of interest" (Ajzen, 1991). It means that if behaviour is not under complete volitional control, then the performer needs to have the necessary resources and opportunities in order to perform the behaviour (Ajzen, 1991).

2.4.3 Recent Thoughts of Motivation

Ambrose and Kulik (1999) argue for the idea that researchers studying employee behaviour should use traditional motivational theories, named as "old friends", as theoretical bases and smorgasbord rather than try to integrate them. They have identified three areas that draw on traditional motivation approaches: groups and culture. They note that research in these three areas has seen increased interest and activity during the 1990s.

2.4.3.1 Groups and Teams

During the last two decades, organisations have shifted toward more group-based work and that has resulted in an increased attention to motivation in group settings in the motivation research. Motivation with groups is supported by the design of work for work teams, and the effects of group goal setting (Ambrose and Kulik, 1999).

Janz *et al.* (1997) find the relationship between job motivation and team efficiency and effectiveness to be more positive when moderated by contextual support variables such as clear goals, communication, feedback, deadlines, mature team members. Jin (1993), in his study to examine the effect of work

group formation on work motivation for work teams in China, found that voluntarily formed work teams reported higher work motivation, higher cooperative intentions and interpersonal relations, greater work satisfaction, fewer disciplinary problems, and higher quantity and quality performance. In their meta-analysis of the group goal-setting literature, O'Leary-Kelly *et al.* (1994) demonstrate the clear effect of group goal-setting on group performance. They find that goal specificity, goal difficulty, assigned goals, and participatively set goals demonstrate positive effects on group performance.

2.4.3.2 Culture

Ambrose and Kulik (1999) note that motivation research has started to acknowledge the importance of culture. However, the research on culture is not yet supported by a unifying theory. "Despite the growing awareness of cultural issues, comparatively little attention has been paid to the practical, day-to-day processes involved in creating, managing and changing organisational culture" (Williams *et al.*, 1993). Ambrose and Kulik (1999) further note that understanding cultural differences is increasingly important, and they call for research on the effect of differences in cultures (uncertainty, collectivism, femininity, power distance) on perceptions of equity and individuals' reactions to work design. According to Oakland (1995, p. 22), the culture within an organisation is formed by five components: behaviours based on people interactions, norms resulting from working groups, dominant values adopted by the organisation, rules of the game for getting on, and the climate. Some culture aspects have been discussed also in section 2.3.

2.5 Synthesis of Motivation and Performance Factors

By critically examining literature on TQM, HPT, and work motivation, a number of key elements that relate to human motivation and performance can be identified. These elements are grouped into eight independent factors and four dependent factors. The eight independent factors, grouped into a major factor named as "Motivation and Performance Antecedents", are: work environment, relations with manager, leadership of top management, resources, clarity of processes, financial benefits, non-financial benefits, and external perception and identity. These eight factors are seen to impact other four dependent factors, which are: employee motivation, capacity to perform, individual performance, and organisational performance. Put together, the 12 factors are elaborated in the discussion below.

2.5.1 Independent Factors

The eight factors that act as antecedents to human motivation and performance are discussed and elaborated here.

2.5.1.1 Work Environment

An effective work environment can be characterised by a person-organisation fit (Waldman, 1994; Dean and Bowen, 1994), relations with colleagues and teamwork (Maslow, 1954; Alederfer, 1972; McClelland, 1961; Herzberg *et al.*, 1959; Anderson *et al.*, 1994), satisfaction with working conditions (Maslow, 1954; Alderfer, 1972; Herzberg *et al.*, 1959; Adams, 1963, 1965), and open communication (Gilbert, 1978; Crosby, 1979).

Waldman (1994) proposes that the congruency between the norms and values of individuals and those of the organisation maximises work performance. Dean

and Bowen (1994) suggest that paying attention to selection and assessing person-organisation fit enhances the implementation of TQ and management practices.

Deming (1986) in point 9 of his framework, emphasises the importance of working as a team and breaking down barriers between departments. Maintaining good relations with colleagues is an important need that causes satisfaction (Maslow, 1954; Alederfer, 1972; McClelland, 1961) and removes job dissatisfaction (Herzberg *et al.*, 1959). Anderson *et al.* (1994) indicate that for all organisational members to be cooperative they need to engage in noncompetitive, mutually beneficial, win-win activities.

According to Maslow's need hierarchy theory and Alderfer's ERG theory, basic work conditions are an important need that should be satisfied (Maslow, 1954; Alderfer, 1972). The absence of good working conditions can cause job dissatisfaction (Herzberg *et al.*, 1959). It is also important that employees perceive that the working conditions are set and provided in a fair manner amongst them (Adams, 1963, 1965).

According to Gilbert (1978), information availability related to the job is one of the key system factors that affect employee performance in the workplace. Crosby (1979) sees that open communication encourages employees to communicate obstacles to management.

2.5.1.2 Relations with Manager

Effective superior-subordinate relations can be characterised by trust relationship between superior and subordinates (Deming, 1986; Crosby, 1979; Herzberg *et al.*, 1959), superior's ability to guide and counsel his/her subordinates (Deming,

1986; Waldman, 1994; Kondo, 1996; Baldrige National Quality Program, 2003), superior's empowerment to his/her subordinates (Dean and Bowen, 1994; Waldman, 1994; Kondo, 1996; Ajzen and Fishbein, 1975), and superior's feedback to his/her subordinates (Gilbert, 1978; Brethower, 1995; Harless, 1990; Skinner 1954,1958, 1969; Rummler and Brache, 1995; Tosti and Jackson, 1996).

Deming (1986) calls for driving out fear and building trust among organisational members. Employees need to be encouraged to communicate obstacles to management openly (Crosby, 1979). Maintaining good relations with and building trust amongst supervisor, peers and subordinates is important in removing job dissatisfaction (Herzberg *et al.*, 1959).

Deming (1986) encourages managers to view their role as colleagues to their subordinates, counselling and leading them from day-to-day, and learning from and with them. Waldman (1994) proposes that managers acting as leaders can stimulate employees' self-efficacies and work values oriented toward teamwork and continuous improvement of work processes. According to Kondo (1996), encouraging and assisting employees to put their ideas into action is a major step in motivating them toward achieving work aims in a creative manner. Leadership is one of the important categories in the Baldrige performance excellence criteria (Baldrige National Quality Program, 2003).

Dean and Bowen (1994) suggest that paying attention to employee empowerment initiatives enhances the implementation of TQ and management practices. Waldman (1994) sees that empowered persons, especially those who are at higher hierarchical level and holding a job with more autonomy, can have a higher potential to impact the system and work performance. According to Kondo (1996), giving people a strong sense of responsibility towards their work is a major step in motivating them toward achieving work aims in a creative

manner. According to the Theory of Reasoned Action, it is important that an individual believes that his or her manager wants him or her to perform the behaviour independently (Ajzen and Fishbein, 1975).

It is very important that managers provide their employees with a relevant and frequent feedback on adequacy of performance (Gilbert, 1978). According to Brethower (1995), feedback is used to guide performance and it is classified into two types: internal feedback (feedback about the performance of individuals, work groups, or processes) and external feedback (feedback from customers and external sources). Harless (1990) calls for changes in the communication system to ensure feedback on performance. Researchers have found that feedback increases job performance and communication skills (Skinner 1954,1958; Rummler and Brache, 1995). So, it is important that managers provide frequent and timely feedback to employees (Tosti and Jackson, 1996), especially when it shows progress towards the set goals (Locke, 1968) and is associated with positive reinforcers (Skinner, 1969).

2.5.1.3 Leadership of Top Management

Leadership of top management can be characterised in terms of involving employees in the decision-making process (Deming, 1986; Dean and Bowen, 1994; Oakland, 1995), organisational orientation (Reed *et al.*, 1996; Tosti and Jackson, 1996; Deming, 1986), and strategic planning (Oakland, 1995; Kaufman, 1994; Anderson *et al.*, 1994; Juran, 1986; Juran and Gryna, 1988; Tosti and Jackson, 1996; Dean and Bowen, 1994).

Deming (1996), in point 14 of his framework, calls for involving everybody in the organisation to accomplish any transformation and change process. According to Dean and Bowen (1994), employee involvement is a key element in

enhancing the implementation of TQ and management practices. Oakland (1995) considers encouraging effective employee participation and involvement as an important factor for effective leadership.

Reed *et al.* (1996) argue that when there is a match between environmental uncertainty and firm orientation, market advantage and product reliability can increase revenues, and process efficiency and product design efficiency can reduce costs. According to Tosti and Jackson (1996), in order to improve performance the change process must meet external needs and maintain a competitive advantage. Organisations should aim to become competitive in the market through creating constancy of purpose toward improvement of product and service (Deming, 1986). Organisations need to be customer focused and aware of the customer and market requirements (Baldrige National Quality Program, 2003).

Effective leadership of top management starts with vision of the top person in the organisation and develops into a strategy for implementation (Oakland, 1995). Kaufman (1994) considers having a valid and useful strategic plan as a strong base for performance improvement. According to Kaufman (1994), a strategic plan should be designed in a way that strategic objectives drive operational objectives, which in turn should be used to develop detailed objectives and related methods and means for delivery. Anderson *et al.* (1994) emphasise the role of top management in identifying a long-range vision as to how an organisation develops, communicating this vision, implementing an action plan, and motivating all organisational members toward the fulfillment of this vision. *Quality Planning* in Juran's (1986) trilogy emphasises planning of processes that will achieve the established goals. Juran and Gryna (1988), in their approach of spiral of progress in quality, call for identifying the activities necessary before a product or a service can be introduced to the market. Making the change process compatible with the organisation's mission and vision and

supporting the organisation's strategic direction are important for performance improvement (Tosti and Jackson, 1996). Dean and Bowen (1994) suggest that paying attention to inclusion of assessment of organisational strengths and weaknesses into strategy enhances the implementation of TQ and management practices.

2.5.1.4 Resources

Brethower (1995) considers resources as important input to any work process in the processing system of an organisation. Juran and Gryna (1988), in their approach of spiral of progress in quality, emphasise on providing the facilities and tools needed to conduct the planned activities. According to Gilbert (1978), resources are one of the key system factors that affect employee performance in the workplace. Resources include tools and equipment required to achieve performance needs, access to leaders, sufficient personnel, and organised work processes (Gilbert, 1978; Tosti and Jackson, 1996). Harless (1990), in addressing the human resources issue, emphasises on specifying a selection criteria based on description of desired performance and job descriptions.

2.5.1.5 Clarity of Processes

Clarity of processes can be characterised in terms of sufficiency and clarity of systems and standards used in the workplace (Rummler and Brache, 1990; Locke, 1968; Juran, 1986; Oakland, 1995; Kondo, 1996; Tosti and Jackson, 1996; Harless, 1990; Herzberg *et al.*, 1959).

It is important that performance specifications in terms of desired outputs and performance standards do exist in the organisation and that employees consider them to be clear and attainable (Oakland, 1995; Rummler and Brache, 1990;

Locke, 1968). Working according to existing systems and standards is important in determining any abnormal variation in the process and taking the necessary actions to bring the variation into a normal level (Juran, 1986). According to Kondo (1996), clear indication of the true aim of the work when giving work instructions is a major step in motivating employees toward achieving work aims in a creative manner.

According to Tosti and Jackson (1996), the systems components in terms of degree of centralisation/decentralisation, consistency of operations and flexibility need to be at the appropriate level in order to support the performance improvement process. In this regard, it is important that the job functions are assigned appropriately, work procedures are supportive, work flow is efficient and effective, and the work is designed generally to be free of duplications or gaps (Tosti and Jackson, 1996). When there is confusion over roles and responsibilities, Harless (1990) calls for design/redesign of work processes and changes in policies and procedures in order to make the roles and responsibilities clear in the organisation. The absence of clear policy and administration procedures can cause job dissatisfaction (Herzberg *et al.*, 1959).

2.5.1.6 Financial Benefits

According to Vroom (1964), it is important that an employee sees that the achieved performance will result in some valued reward for him or her. If the employee perceives a positive relationship between improved performance and some valued reward, then he or she will be motivated to exert much effort towards improving his or her performance. It is also important that employees perceive that rewards, in general, are set and provided in a fair manner amongst them (Adams, 1963, 1965). Anderson *et al.* (1994) propose that fulfilling employees' needs leads to customer satisfaction. Rewards and recognition, if

designed to meet the expectations of employees, can lead to satisfaction of employees (Tosti and Jackson, 1996). Harless (1990) calls for design/redesign of recognition programmes as a motivational intervention for addressing staff frustration and dissatisfaction in the organisation.

According to Gilbert (1978), performance based monetary incentives are one of the key system factors that affect employee performance in the workplace. It is important that managers recognise worker's willingness to work for available incentives. Pay is considered as one of the basic physiological needs that must be satisfied (Maslow, 1954; Alderfer, 1972; Herzberg *et al.*, 1959). Incentive interventions include design/redesign of rewards systems, such as gain-sharing, Harless (1990).

2.5.1.7 Non-financial Benefits

Non-financial benefits include job security, health services (Maslow, 1954), career development opportunities (Maslow, 1954; Alderfer, 1972; Gilbert, 1978; McClelland, 1961), training (Harless, 1994; Deming, 1986; Crosby, 1979) and recognition (Maslow, 1954; Alderfer, 1972; Herzberg *et al.*, 1959; Skinner, 1969).

Maslow's need hierarchy theory considers many non-financial benefits as important needs that should be satisfied in a hierarchical order. First, physiological needs, such as basic working conditions, need to be fulfilled. Second, safety needs, such as insurance, retirement plans, job security, safe and healthy working conditions, and fair treatment need to be satisfied. Third, belongingness needs, such as memberships and organised employees activities need to be addressed. Fourth, esteem needs, such as status, recognition, and promotions need to be attended to. Finally, self-actualisation needs, such as challenge and career development opportunity must be tackled (Maslow, 1954).

Alderfer (1972), in his ERG theory, addressed these five categories of needs in three main sets of needs: existence (E), relatedness (R) and growth (G). Herzberg *et al.* (1959) consider recognition as an important motivator factor. Skinner (1969) considers all these types of needs as positive reinforcers that can motivate people to repeat their behaviour in a certain manner. Individuals who are interested in self-development like to achieve higher levels of competency. The need for achieving higher levels of competency is similar to what McClelland (1961) refers to as a high need for achievement. Crosby (1979) emphasises on recognising and appreciating those who participate in the job.

When, for example, lack of knowledge and skills is the cause of a performance problem, developing and delivering a curriculum that is based on accomplishment is an effective solution (Harless, 1994). Harless' (1994) accomplishment-based curriculum development (ABCD) model (Harless, 1994) uses both systematic and systems approach with the content of training derived out of expected on-the-job accomplishment. All organisational members should be provided with the necessary training (Deming, 1986), especially those who assume supervisory roles (Crosby, 1979).

2.5.1.8 External Perception and Identity

External perception and identity of an organisation can be characterised in terms of its corporate identity (Tosti and Jackson, 1989), external prestige (Oakland, 1995), and corporate social responsibility (Baldrige National Quality Program, 2003; Kaufman, 1994).

Corporate identity; in terms of how an organisation performs, thinks, feels, behaves and interfaces with the external world through its employees; is emphasised by taking a cultural path in providing direction to move from

organisational mission and vision to specific organisational results (Tosti and Jackson, 1989). Culture plays an important role in the development of corporate identity and organisational alignment (Hatch and Schultz, 1997; Tosti and Jackson, 1989). In this context, Kiriakidou and Millward (2000, p. 50) define culture as "the corporate values that are held by staff and management and their concrete manifestation in organisational symbolism and behaviour, which frame the way that the organisation operates". So, the values held by organisational members are very important in the formation process of an organisation's identity. Those values are appreciated by both organisational members and external people (Tosti and Jackson, 1989).

For any organisation, external prestige or reputation is built by paying attention to the competitive elements of quality, reliability, delivery, and price (Oakland, 1995). Out of these elements, quality is considered by organisational members and outside people as the most important. One of the most important lessons many Japanese companies learned after the Second World War was to manage quality and the other competitive elements. People feel proud to work for organisations with high reputation.

Corporate social responsibility (CSR) is considered by an organisation when it addresses its responsibilities to the public, ensures ethical behaviour, and practices good citizenship (Baldrige National Quality Program, 2003). In his *Strategic Planning Plus Model*, Kaufman (1994) emphasises on the importance of the societal (mega) level and calls for addressing the ethical and social aspects of performance. He considers the society as the main client. He emphasises on results that relate to societal payoffs and consequences, such as survival and quality of life. The ideal vision that we should have, according to Kaufman (1994), is the kind of world we want for tomorrow's children.

A positive external perception and identity encourages employees to identify with their organisation and be more loyal to it (Tosti and Jackson, 1989; Kaufman, 1994; Baldrige National Quality Program, 2003). People like to work for organisations with high positive external perception and identity.

2.5.2 Dependent Factors

The four dependent factors, which are influenced by the eight motivation and performance antecedents highlighted above, are discussed and elaborated here.

2.5.2.1 Motivation

Human motivation is characterised in terms of what and how to activate, direct, and maintain behaviour. As discussed before, human motivation has been addressed in detail by motivation theories from two main perspectives. The first perspective focuses on the content aspects of motivation in terms of what factors within the individual energise, direct, sustain, or stop behaviour. Content theories of motivation try to identify the specific needs that motivate individuals. These theories include Maslow's (1954) hierarchy of needs theory, Aldefer's (1972) ERG theory, McClelland's (1962) socially acquired needs theory, and Herzberg's (1959) two-factor theory. The second perspective focuses on the process content aspects of motivation in terms of how to energise, direct, sustain, or stop behaviour. The process theories include Skinner's (1954) reinforcement theory, Vroom's (1964) expectancy theory, Adams' (1963) equity theory, and Locke's (1968) goal setting theory.

According to Waldman (1994), work motivation that is derived from enriched work can lead to extra-role performance behaviour, including engaging in teamwork and continuous improvement activities. Therefore, it is important to

assess worker's motivation (Gilbert, 1978). According to Gilbert (1978), "motivated performance" is one of the basic psychological principles and is considered as the prescriptive basis for the design of effective interventions. This principle indicates that performance will continue if and only if it leads to something valued by the performer. Motivation/incentives interventions are an important category of interventions that need to be considered in addressing performance problems (Harless, 1970).

2.5.2.2 Capacity to Perform

Human capacity to perform is characterised in terms of self-efficacy (Ajzen and Fishbein, 1975; Rummler and Brache, 1990; Loke, 1996; Kondo, 1996), cognitive ability (Locke *et al.*, 1991; Waldman, 1994; Adams, 1963; Gilbert, 1978; Rummler and Brache, 1990), and knowledge and skills (Gilbert, 1978; Rummler and Brache, 1995; Harless, 1970; Tosti and Jackson, 1996; Waldman, 1994; Adams, 1963; Deming, 1986; Juran, 1989). Organisations should ensure that there is a match between individual skills and the requirements of the job. Employees must have the required aptitudes, verbal skills, manual dexterity, and so on, to perform in an acceptable manner (Gilbert, 1978).

In order to achieve a high level of self-efficacy, it is important that people perceive that it is easy to perform the behaviour of interest (Ajzen and Fishbein, 1975). Rummler and Brache (1990) refer to self-efficacy as emotional capacity and consider it as one of the important factors that influence individual performance. Loke (1996) finds that self-efficacy influences both the difficulty of the goal accepted, and commitment to the goal; that is people with high level of self-efficacy can handle more difficult tasks with higher commitment. According to Kondo (1996), providing freedom in the means and methods of handling the

work is a major step in motivating them toward building high self-efficacy and achieving work aims in a creative manner.

Cognitive ability is considered to be a major trait of effective leaders (Locke *et al.*, 1991). Leaders with strong cognitive ability, which is consistent with high intelligence, can process large amounts of information, develop comprehensive strategies, and solve complex problems. Intelligence plays an important role in the determination of work performance (Waldman, 1994; Adams, 1963). It is important that employees are mentally able to perform (Gilbert, 1978; Rummler and Brache, 1990). Therefore, it is important that organisations hire people who are knowledgeable, intelligent, and creative in their thinking processes (Gilbert, 1978).

The level of knowledge and skills is considered as a vital factor that affects job performance (Gilbert, 1978; Rummler and Brache, 1995; Harless, 1970; Tosti and Jackson, 1996; Waldman, 1994, Adams, 1963). Gilbert (1978) considers *knowledge and skills* as a key person factor that influences employee performance in the workplace, and to achieve the required knowledge and skills he emphasises on using systematically designed training to match requirements of exemplary performers, and providing the opportunity for that training. In addition to having the necessary knowledge and skills to perform, Rummler and Brache (1990) see that it is critical for employees to understand why the desired performance is important. TQM proponents recognise the importance of work-related competencies and that these competencies should be maintained over time by continuous training and development activities (Deming, 1986; Juran, 1989).

2.5.2.3 Individual Performance

Individual performance is characterised here in terms of individual accomplishments (Rummler and Brache, 1995; Gilbert, 1978; Vroom, 1964; Locke, 1968) and job commitment (Vroom, 1964; Locke, 1968; Ajzen and Fishbein, 1975).

Rummler and Brache (1995) address individual performance in terms of job goals and outputs that should be set according to performance standards, made clear to employees, and considered to be attainable by employees. According to Gilbert (1978), human performance (P) is a function of both behaviour (B) and accomplishment (A); that is $P = f(B,A)$. The implication of this conceptualisation is that behaviour, alone, is not sufficient in causing high performance. So, performance has two parts, an activity (behaviour) and the outcome of the activity. Human behaviour needs to be directed towards specified goals in order to produce some useful accomplishments. It is also important that the employee expects that a specific effort will result in achieving a particular level of performance (Vroom, 1964). This expectation is important for employees to be motivated to exert much effort towards achieving any performance. According to Locke's Goal Setting Theory, commitment to achieving the set goals, especially when they are specific and difficult, is critical to produce better performance (Locke, 1968). Commitment to achieving the set goals should be supported by the individual's behavioural intention (BI) to perform a specific behaviour (Ajzen and Fishbein, 1975). Quality gurus emphasised in their frameworks the importance of commitment of all organisational members for achieving quality performance (Deming, 1986; Juran, 1974; Crosby, 1979)

2.5.2.4 Organisational Performance

Organisational performance is operationalised here in terms of achievement of organisational goals (Rummler and Brache, 1995; Tosti and Jackson, 1996) and level of business results (Baldrige National Quality Program, 2003; Reed *et al.*, 1996).

Rummler and Brache (1995) address organisational performance in terms of organisational goals. Organisational goals include values of the organisation, customers' requirements, financial and non-financial expectations, target for each product and market, and competitive advantages (Rummler and Brache, 1995). Tosti and Jackson (1996) measure organisational performance in terms of stakeholders' satisfaction. According to Tosti and Jackson (1996), in order to improve performance the change process must be compatible with the organisation's mission and vision, support the organisation's strategic direction, meet external needs, and maintain a competitive advantage.

The Baldrige National Quality Program (2003) criteria for business results are customer-focused results, product and service results, financial and market results, human resources results, organisational effectiveness results, and government and social responsibility results. Reed *et al.* (1996) address firm performance, in the form of increased revenues, reduced costs, and their time lags, in the context of firm orientation (customer or operations), TQM content, and environmental uncertainty.

To sum up, the 12 motivation and performance factors (8 independent and 4 dependent factors) along with their sub-variables were synthesised above based on 10 TQM frameworks, 6 HPT models, and 9 motivation theories. Summary of this synthesis is shown in table 2.6. In the next chapter, each of these factors will

be developed in detail. Concepts and empirical evidence relating to these factors will be presented.

2.6 Summary

This chapter aimed to review the literature related to human motivation and performance in order to identify and synthesise a number of key elements/factors that relate to human motivation and performance. To do that, the chapter reviewed the literature related to the three areas: total quality management (TQM), human performance technology (HPT), and work motivation. It described and discussed the early and recent thoughts in these three fields, based on the writings of the proponents of the fields. Based on extensive literature on TQM, HPT, and work motivation, key elements/factors that relate to human motivation and performance were identified and synthesised. The chapter aimed to lay a theoretical foundation for the study and development of a conceptual framework of motivation and performance.

Based on examining 10 TQM frameworks, 6 HPT models, and 9 motivation theories, the chapter identified and synthesised eight independent factors and four dependent factors that relate to human motivation and performance in the workplace. The eight independent factors, grouped into a major constructs named as "Motivation and Performance Antecedents", were: work environment, relations with manager, leadership of top management, resources, clarity of processes, financial benefits, non-financial benefits, and external perception and identity. The four dependent factors were: employee motivation, capacity to perform, individual performance, and organisational performance.

Table 2.6 Synthesis of Motivation and Performance Factors

No.	FACTOR	Model																								
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
INDEPENDENT FACTORS (MOTIVATION AND PERFORMANCE ANTECEDENTS)																										
IV1	**Work Environment**																									
IV1.1	Person-organisation fit						✓		✓			✓														
IV1.2	Relationship with colleagues & teamwork	✓	✓	✓	✓		✓			✓								✓	✓	✓	✓					
IV1.3	Communication	✓	✓	✓	✓		✓			✓		✓	✓													
IV1.4	Working conditions											✓		✓				✓	✓	✓						
IV2	**Relations with Manager**																									
IV2.1	Trust	✓		✓																✓						
IV2.2	Coaching	✓			✓				✓		✓															
IV2.3	Empowerment						✓		✓		✓															✓
IV2.4	Feedback		✓	✓								✓	✓	✓		✓	✓					✓			✓	
IV3	**Leadership of Top Management**																									
IV3.1	Involvement in Decision-making	✓						✓																		
IV3.2	Organisational orientation				✓	✓											✓									
IV3.3	Strategic planning	✓	✓		✓		✓			✓					✓		✓									
IV4	**Resources**																									
IV4.1	Physical resources		✓									✓	✓				✓									
IV4.2	Human resources				✓							✓	✓	✓			✓									
IV5	**Clarity of Processes**																									
IV5.1	Sufficiency of systems and standards		✓		✓												✓			✓						
IV5.2	Clarity of systems and standards		✓	✓	✓		✓	✓			✓	✓	✓	✓		✓	✓			✓					✓	
IV6	**Financial Benefits**																									
IV6.1	Wages											✓						✓	✓	✓		✓	✓	✓		
IV6.2	Monetary incentives											✓		✓								✓	✓	✓		
IV7	**Non-financial Benefits**																									
IV7.1	Job security																	✓	✓			✓	✓	✓		
IV7.2	Health services																	✓	✓			✓	✓	✓		
IV7.3	Training and development opportunity	✓	✓	✓	✓					✓		✓	✓	✓				✓	✓		✓	✓	✓	✓		
IV7.4	Recognition			✓								✓		✓				✓	✓	✓		✓	✓	✓		
IV8	**External Perception and Identity**																									
IV8.1	Corporate identity																✓									
IV8.2	External prestige							✓																		
IV8.3	Corporate social responsibility				✓										✓											
DEPENDENT FACTORS																										
DV1	**Employee Motivation**																									
DV1.1	Activation of efforts								✓			✓		✓				✓	✓	✓	✓	✓	✓	✓	✓	
DV1.2	Direction of efforts								✓			✓		✓				✓	✓	✓	✓	✓	✓	✓	✓	
DV1.3	Maintenance of efforts								✓			✓		✓				✓	✓	✓	✓	✓	✓	✓	✓	
DV2	**Capacity to Perform**																									
DV2.1	Self-efficacy										✓					✓					✓				✓	✓
DV2.2	Cognitive ability								✓			✓				✓								✓	✓	
DV2.3	Knowledge and skills	✓	✓						✓			✓		✓		✓	✓							✓		
DV3	**Individual Performance**																									
DV3.1	Results based efforts				✓							✓	✓										✓		✓	
DV3.2	Job commitment	✓	✓	✓								✓													✓	✓
DV4	**Organisational Performance**																									
DV4.1	Organisational goals achievement				✓	✓																				
DV4.2	Performance level				✓	✓																				

Legend: IV ≡ Independent Variable; DV ≡ Dependent Variable; Models are as follows:

TQM Models	HPT Models	Motivation Theories
1. Deming's Framework 2. Juran's Framework 3. Crosby's Framework 4. Malcolm Baldrige National Quality Award 5. Reed *et al.*, 1996 6. Dean and Bowen, 1994 7. Oakland, 1995 8. Waldman, 1994 9. Anderson *et al.*, 1994 10. Kondo, 1996	11. Gilbert's Behaviour Engineering Model 12. Brethower's Total Performance System Model-TPS 13. Harless' Performance Improvement Process Model-PIP 14. Kaufman's Strategic Planning Plus Model 15. Rummler's Three Levels Model 16. Tosti and Jackson Organisational Scan Model	17. Maslow's Need Hierarchy Theory 18. Alderfer's ERG Theory 19. Herzberg's Motivation-Hygiene Theory of Job Satisfaction 20. David McClelland's Socially Acquired Needs Theory 21. Skinner's reinforcement theory 22. Vroom's Expectancy Theory of Motivation 23. Adams' Equity Theory 24. Locke's Goal Setting Theory 25. Theory of Reasoned Action

The 12 motivation and performance factors (8 independent and 4 dependent factors) were identified and synthesised for the purpose of developing the constructs of the study. The 12 constructs will be developed in chapter 3 based on theoretical background and empirical evidences from the literature for the purpose of proposing hypotheses that examine the relationships between the independent and dependent variables, and developing a conceptual framework for motivation and performance.

CHAPTER 3 DEVELOPMENT OF HYPOTHESES AND CONCEPTUAL MODEL

3.1 Introduction

This chapter aims to develop hypotheses and a conceptual framework based on the literature review conducted in chapter 2. It discusses and elaborates, in detail, the factors that were identified and synthesised in chapter 2 (section 2.5). Based on theoretical background and empirical findings from the literature, the chapter proposes hypotheses relating to the synthesised factors. Finally, the research hypotheses are translated into a conceptual framework for testing and analysis.

The Factors that were identified and synthesised in chapter 2 (section 2.5) are eight independent factors and four dependent factors. The eight independent factors are: Work Environment, Relations with Manager, Leadership of Top Management, Resources, Clarity of Processes, Financial Benefits, Non-financial Benefits, and External Perception and Identity. These eight factors are seen to act as antecedents to motivation and performance, and therefore are conceptualised into one major construct named "Motivation and Performance Antecedents". Theses eight independent factors are discussed and elaborated in section 3.2. The four dependent factors are: Motivation, Capacity to Perform, Individual Performance, and Organisational Performance. These 4 dependent factors are discussed and elaborated in sections 3.3, 3.4, 3.5, and 3.6 respectively.

3.2 Motivation and Performance Antecedents

The eight independent factors (Work Environment, Relations with Manager, Leadership of Top Management, Resources, Clarity of Processes, Financial

Benefits, Non-financial Benefits, and External Perception and Identity), which act as antecedents to motivation and performance are discussed and elaborated here.

3.2.1 Work Environment

The workplace can be considered as an important part of the life for people because they spend most of their active time at work. Therefore, it is very important for people to perceive that their work environment is good and satisfying. Newman (1997) considers the perceived work environment (PWE) to have a positive impact on employee's motivation, satisfaction and performance.

An effective work environment can be characterised by a person-organisation fit (Sims and Keon, 1997), relations with colleagues and teamwork (Holmstrom 1982; Dean and Bowen, 1994), satisfaction with working conditions (Herzberg *et al.*, 1959; Anderson, 1984; Blegen, 1993), and open communication (Morrow, 1997).

3.2.1.1 Person-Organisation Fit

Person-organisation fit has been operationalised by different writers as the congruence between individual and organisational values (e.g., Boxx, Odom, and Dunn, 1991; Chatman, 1989, 1991; Judge and Bretz, 1992; Posner, 1992), individuals' goal congruence with the goals of organisational leaders and peers (e.g., Vancouver *et al.*, 1994; Vancouver and Schmitt, 1991; Witt and Nye, 1992), the match between individual preferences or needs and organisational systems and structures (e.g., Bretz *et al.*, 1989; Cable and Judge,1994; Turban and Keon, 1993), and the match between the characteristics of individual personality and organisational climate; sometimes labelled as "organisational personality" (e.g., Bowen *et al.*, 1991; Burke and Deszca, 1982; Ivancevich and Matteson, 1984;

Tom, 1971). Kristof (1996, pp. 4,5) tries to incorporate all these multiple perspectives into one operationalisation and defines person-organisation fit in a comprehensive manner as "the compatibility between people and organisations that occurs when: (a) at least one entity provides what the other needs, or (b) they share similar fundamental characteristics, or (c) both".

If a person perceives that he or she fits well in an organisation and there is a match between organisational climate and his or her preferences and personality characteristics, then it is likely that satisfaction, commitment, and low intention to leave will result (Downey *et al.*, 1975; Posner *et al.*, 1985; Tziner, 1987). Sims and Keon (1997) find that a match between individual preferences and present position positively influences employees' perception about a good work environment. Judge *et al.* (1995) explain that person-organisation fit can lead to positive outcomes because of facilitated communication. Person-organisation fit can result in organisational homogeneity, low turnover (Schneider, 1987), positive work attitudes (Dawis and Lofquist, 1984), task performance (Tziner, 1987), and career success (Bretz and Jude, 1994).

Personality is generally defined as "the dynamic and organised set of characteristics of a person that uniquely influences his or her cognitions, motivations, and behaviours" (Allport, 1961, p. 28). Jung's theory of psychological types attempts to categorise people in terms of their primary modes of psychological functions and attitudes of their consciousness. The functions of consciousness refer to the different ways in which the conscious mind can capture reality; and these, according to Jung, are arranged into two pairs of opposites. Firstly, there are the two perceiving functions, which are sensation as opposed to intuition. Secondly, there are the two judging functions, which are thinking as opposed to feeling. The attitudes of consciousness refer to the basic direction in which a person's conscious interests and energies may flow;

and these two attitude types are introversion and extraversion. According to Jung, whichever function and attitude dominates consciousness, their opposites will tend to be repressed (Jung, 1971). Based on Jung's psychological type theory, Myers and Briggs proposed the MBTI (Myers-Briggs Type Indicator) framework to discuss personality types and their potential influence on team effectiveness (Myers and McCaulley, 1985).

The relationship between personality traits and performance has received a lot of support in the literature. Generally, personality traits and their match with the organisation have been found to be positively associated with employee performance (Vinchur *et al.*, 1998; Erez and Judge, 2001; Barrick and Mount, 1991), team performance (Bradley and Hebert, 1997), career success (Dyer and Shafer, 1999), and motivation of managers (Miner and Smith, 1982).

Measures of personality dimensions such as extroversion and conscientiousness are found to be useful for predicting sales performance (Vinchur *et al.*, 1998). In a study to examine the relationship of core self-evaluations to goal setting, motivation, and performance, Erez and Judge (2001) showed that the core traits of self-esteem, locus of control, generalised self-efficacy and neuroticism were related to task activity, productivity as measured by sales volume and the rated performance of insurance agents.

Barrick and Mount (1991) investigated the relation of the five personality dimensions (extraversion, emotional stability, agreeableness, conscientiousness, and openness to experience) to three job performance criteria (job proficiency, training proficiency, and personnel data) for five occupational groups (professionals, police, managers, sales, and skilled/semi-skilled). Their results indicated that the dimension of conscientiousness showed consistent relations with all job performance criteria for all occupational groups. Extraversion was a

valid predictor for two occupations: managers and sales. Openness to experience and extraversion were found to be valid predictors of the training proficiency criterion. The results for agreeableness suggest that it is not an important predictor of job performance. In another study, Barrick and Mount (1993) assessed the relationship of conscientiousness to job performance through mediating motivational (goal-setting) variables using a group of 91 sales representatives. They showed that sales representatives with higher level of conscientiousness are more likely to set goals and are more likely to be committed to the goals, which in turn is associated with greater sales volume and higher supervisory ratings of job performance.

Bradley and Hebert (1997) developed a model of the theoretical impact of individual personality differences on the productivity of information systems (IS) development teams. Their application of the model to two IS development teams, that differed mainly in personality-type composition, showed that the differences in team performance were primarily caused by differences in the personality-type composition of the two teams. According to the model, a productive team should be featured to have a good level of leadership, intra-team communication, cohesion and heterogeneity. A good leader is one whose personality is characterised by extroversion, thinking and judgment. The effective team should have also a healthy component of extroverts to ensure sufficient intra-team communication. Then, the team should be cohesive and able to resolve conflicts in a positive way. Finally, the team must be heterogeneous to benefit from the individual contribution of each personality type.

Dyer and Shafer (1999) developed a theoretical model, which proposes that several personality traits (locus of control, self-monitoring, self-esteem, optimism, and machiavellianism) are determinants of person-environment fit, job performance, and career success. Career success can be defined as the real or

perceived achievements individuals have accumulated as a result of their work experiences (Judge *et al.*, 1995). It is comprised of intrinsic success (job satisfaction) and extrinsic success (income and occupational status) dimensions (Judge *et al.*, 1999). High conscientiousness was associated with intrinsic career success, while low neuroticism, low agreeableness, high extraversion, high conscientiousness, and high cognitive ability were associated with extrinsic career success (Judge *et al.*, 1999).

Miner and Smith (1982) developed an instrument called "the Miner Sentence Completion Scale" that can be used to measure the motivation of managers. The instrument measures traits such as the desire to engage in competition, be assertive, impose one's wishes on others, and stand out from the group; and it has been found to be one of the most successful predictors of managerial success as indicated by performance ratings, peer ratings, promotion rates and managerial level in large bureaucratic organisations (Miner, 1965, 1977, 1978; Smith *et al.*, 1983; Cappelli, 1995).

The knowledge that personality is a determinant of career success has a value for both the individuals and the organisation. For the individuals, they can assess their own personality strengths and weaknesses in order to modify their personality for career success (Aryee *et al.*, 1994; Ellis and Heneman, 1990; Bandura, 1977). For the organisation, it can be useful for designing effective strategies for recruitment, training, and promotion (Aryee *et al.*, 1994). One can expect a relationship between one's personality and one's motivation basis. Recognition of employees can be more effective if it takes into account the employee's personality and temperament.

To sum up, a number of antecedents can predict and influence person-organisation fit. First, assessing individual value profiles, personality traits, and

other qualities during the selection process can reflect a good fit with the organisation and save both the individual and organisational resources by improving organisational screening mechanisms and individuals' self-selection out of particular firms (e.g., Rynes, 1991; Wanous, 1980; Baron and Kreps, 1999). Second, individual and organisational socialisation practices positively influence person-organisation fit as they increase employees' skill-based as well as cognitive learning (Kraiger *et al.*, 1993). Third, the degree to which organisational reinforcement systems meet individuals' needs has a positive impact on person-organisation fit (Bretz and Jude, 1994).

3.2.1.2 Relations with Colleagues and Teamwork

An important characteristic of an effective work environment is when co-workers are trusting, supporting, friendly, and cooperative (Holmstrom, 1982). Teamwork is one of the TQM principles considered as an integral part of an organisation's culture (Dean and Bowen, 1994). Oakland (1995) notes that quality gurus call for eliminating barriers between departments by improving communications and teamwork. Sherwood (1988, 1989) sees teamwork as an important trait for a high-performance, high-commitment work culture.

Goh (2000) sees that better working environment, stronger teamwork, interpersonal relationship, leadership and personal communication skills help inspire greater quality consciousness among staff. Mann (2000) notes that there is also strong evidence of the effects of teamwork on performance measures such as quality, quantity, timeliness, and customer satisfaction. Jin (1993) finds that voluntarily formed work teams reported higher work motivation, higher cooperative intentions and interpersonal relations, greater work satisfaction, fewer disciplinary problems, and higher quantity and quality performance.

3.2.1.3 Working Conditions

According to Herzberg *et al.* (1959), *working conditions* constitute an important factor that removes dissatisfaction. Others see that *working conditions* is important for job satisfaction and performance (Maslow, 1954; Alderfer, 1972). Overall, job satisfaction is found to be significantly affected by job dimensions such as skill variety, task identity, task significance, autonomy, and feedback from the job (Anderson, 1984). In a meta-analysis of 48 studies on nursing satisfaction, Blegen (1993) identified that education and experience act as personal variables; and supervisor communication, commitment, autonomy, recognition, peer communication, fairness, and professionalism as organisational variables, that affect job satisfaction. Among the many organisational based antecedents of job satisfaction that have been studied are role ambiguity and role conflict. They have been found to be negatively associated with job satisfaction (Fisher and Gitelson, 1983; Jackson and Schuler, 1985; Van Sell *et al.*, 1981; Rizzo *et al.*, 1970; Chonko *et al.*, 1986).

3.2.1.4 Communication

An organisational culture that is supported by open communication is seen to be important for an effective work environment (Dean and Bowen, 1994; Morrow, 1997). Open flow of communication is seen to assist employees in accomplishing their job duties (Giunipero and Vogt, 1997).

Pettit *et al.* (1997) conceptualised organisational communication in terms of seven dimensions that relate to job performance in one way or another: trust in superiors, perceived influence of superiors, accuracy of information, desire for interaction, satisfaction with communication, information load, and directionality of communication. The importance of communication within organisations and manager feedback and their effects on job performance and job satisfaction have

been well documented (Clampitt and Downs, 1993; Pettit *et al.*, 1997; Putti *et al.*, 1990; Wanguri, 1995).

Information availability is considered as a critical factor that influences human performance in the workplace (Gilbert, 1978; Stolovitch and Keep, 1999; Fuller and Farrington, 1999; Rosenberg *et al.*, 1999). Researchers have found that feedback increases job performance and communication skills (Skinner 1954,1958; Tosti, 1986; Spitzer, 1999; Rummler and Brache, 1995; Fuller and Farrington, 1999; Svenson and Wallace, 1989) and acts as a critical element of any successful intervention (Powers, 1999).

The use of integrative mechanisms can provide the correct information both efficiently and effectively, which in turn encourages employees to be more innovative (Hage, 1980). Integration refers to the use of coordinative and integrative mechanisms within the organisation (Miller, 1987). Integration can be accomplished through communication among individuals and groups (Ford *et al.*, 1988; Wetzel and Buch 2000).

Crosby (1979) calls for open communication and encourages employees to communicate obstacles to management. Clampitt and Downs (1993) conducted a survey investigating the relationship between communication satisfaction and productivity. The survey involved both a service organisation and a manufacturer. They used the Communication Satisfaction Questionnaire (CSQ), which was developed by Downs and Hazen (1977). The questionnaire measures communication satisfaction in interpersonal, group, and organisational contexts using eight communication satisfaction dimensions: personal feedback, supervisory communication, co-worker communication, organisation integration, corporate communication, communication climate, media quality, and supervisor

communication. They found that all the eight communication satisfaction dimensions influenced employee productivity.

The relationship between communication satisfaction and job satisfaction has been reported to be very strong (Pincus 1986; Pettit *et al.*, 1997). Pincus (1986), in a field study of 327 hospital nurses, found a positive relationship between communication and job performance and a stronger link between communication and satisfaction. Pettit *et al.* (1997), in a study of two manufacturing companies, found that communication is strongly associated with job satisfaction, and certain aspects of organisational communication such as appropriate and accurate information served as moderators between job performance and job satisfaction. They identified the communication dimensions that predict job satisfaction as accuracy of information, desire for interaction, communication load, trust in superior, influence of superior and satisfaction with communication. These communication dimensions have also been shown as directly related to job performance (Caldwell and O'Reilly, 1983; O'Reilly and Roberts, 1977). In addition, communication elements such as accurate information, explanations for decisions and openness are found to positively affect trustworthiness (Whitener *et al.*, 1998).

3.2.2 Relations with Manager

Having effective relations with superiors is seen to remove dissatisfaction (Hezberg *et al.*, 1959). Effective superior-subordinate relations can be characterised by trust relationship between superior and subordinates (Rotter 1967; Hosmer, 1994; Hummels and Roosendaal, 2001), superior's ability to guide and counsel his/her subordinates (Deming, 1986; Juran, 1989; Beer and Walton, 1987; Sandell, 1979), superior's empowerment to his/her subordinates (Oakland,

1995), and superior's feedback to his/her subordinates (Tosti, 1986; Harless, 1990).

3.2.2.1 Trust

Deutsch (1958) defined trust as an individual's optimistic expectation about the outcome of an event. According to Zand's (1972), trust is the willingness of one person to increase his vulnerability to the actions of another person, whose behaviour he could not control. Mayer *et al.* (1995, p. 712) defined trust as "the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other party will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party". They proposed a model of trust that consolidates many different dimensions identified by other writers into three main categories: the people's perceptions of ability, benevolence and integrity. Ability refers to the skills, competencies, and characteristics that enable an individual to perform in a specific domain. Benevolence is the extent to which a trustee is believed to want to do good to the trustor. Integrity refers to the adherence to a set of principles (Mayer *et al.*, 1995).

Hosmer (1995, p. 3999) defines trust as the "expectation by one of ethically justifiable behaviour – that is, morally correct decisions and actions based upon ethical principles of analysis – on the part of the other in a joint endeavour or economic exchange". Hosmer (1995), in his review of the literature on trust, summarises the different interpretations of trust in terms of considering trust as individual expectations, as interpersonal relations, as a non-element in economic transactions, and as a social mechanism.

Based on Hosmer's definition of trust, Wicks *et al.* (1999) call for "optimal trust" and operationalises it in terms of 1) mutual trust relationship amongst all stakeholders of the firm, 2) willingness to trust, rather than on being trusted, 3) embedding trust socially, and 4) considering trust as a dynamic and continuous variable, rather than an either/or phenomenon. They propose that trust can enhance strategic processes and a firm's performance.

Establishing trust in any organisation is very important for a number of reasons. Trust helps save time and effort, creates a safe and secure environment for the members of any organisation, develops and maintains an organisation's identity as a caring one (Hummels and Roosendaal, 2001). It also helps facilitate cooperation (Mayer *et al.*, 1995; Smith *et al.*, 1995), lowers agency and transaction costs (Frank, 1988; Jones, 1995), promotes smooth and efficient market exchanges (Arrow, 1974; Smith, 1981), and improves firms' ability to adapt to complexity and change (Korsgaard *et al.*, 1995; McAllister, 1995). The presence of trust between individuals within the organisation can result in efficiency, adjustment, survival (Rotter 1967, p. 651), and commitment (Hosmer, 1994; Ring and Van de Ven, 1989). Having said that, commitment is considered to be a strong antecedent of trust as well (Porter and Lilly, 1996). Sashittal *et al.* (1998) found that trust strongly impacts how managers' performance is evaluated.

Porter and Lilly (1996) develop and validate a model which proposes that commitment not only leads to performance, but it also leads to trust, which in turn increases task processes and reduces conflict and ultimately improves performance. Morgan and Hunt (1994) also viewed trust to influence commitment. The antecedents of trust also include organisation's climate, social relationships, open communication, and cooperation (Strutton *et al.*, 1993; Tyler and Kramer, 1996; Johnson and Johnson, 1989; Sitkin and Roth, 1993).

McAllister (1995) found that the frequency of interaction between the manager and the peers is positively associated with trust.

3.2.2.2 Coaching

In his emphasis on leadership, Deming (1986) encourages managers to take a leading and counselling role and aim to remove the causes of failure and help their people to do a better job. Leadership is considered as one of the important factors for organisational success (Deming, 1986; Juran, 1989) and organisational change (Beer and Walton, 1987). According to Sandell (1979), the supervisor's leadership is one of the key factors for achieving quality performance.

Frankel and Otazo (1992) indicate that commitment positively influences employee productivity and creativity. They argue that in order for employees to be committed, they need to be coached instead of managed. Through coaching, employees can discover alternative behaviours in their activities. Frankel and Otazo (1992) see trust as an important ingredient between the manager, as a coach, and his or her employees.

Bentley (1996) refers to coaching as a way to give employees instructions on how they can better use the skills and expertise they already have in order to improve performance. Bentley (1996) sees that support, modelling, step-by-step development, and encouragement as four core elements of the coaching process. In order for the coaching process to be effective, it needs to focus on results, the exploration of specific problems, and opportunities to develop better skills (Megginson 1995).

3.2.2.3 Empowerment

Empowerment is perceived differently by different writers. Some writers consider empowerment to be the set of activities and practices of managers that give power, control, and authority to their subordinates over some or all aspects of the task (Bennis, 1984; Conger and Kanungo, 1988). Others define empowerment from the subordinate point of view. They define empowerment as the perception of being empowered (Spreitzer, 1995; Thomas and Velthouse, 1990). Empowerment as seen by the second perspective include four components: (a) the work is meaningful for the employee, (b) the employee feels competent to do the job, (c) the employee feels that he or she can do the work autonomously, and (d) the employee feels the work has positive consequences (Spreitzer, 1995; Thomas and Velthouse, 1990).

Oakland (1995) defines empowerment as encouraging effective employee participation and involvement. Encouraging effective employee participation and involvement (empowerment) is an important factor for effective leadership (Oakland, 1995). Empowerment and delegation can be captured by the encouragement of the increase in decentralisation and decrease in centralisation. Decentralisation refers to the extent of the delegation of decision-making authority within the organisation (Dalton *et al.*, 1980), while centralisation refers to the locus of decision authority and control within an organisational entity (Walker and Ruekert, 1987). A positive relationship between successful adoption of innovations and decentralisation exists (Hage and Aiken, 1970) because, with decentralisation, employees are more likely to feel a sense of ownership, which in turn increases the likelihood that they come up with new ideas and implement them.

Empowerment is seen to provide employees with a feeling of being strong, and a sense of ownership and control over their jobs (Bass, 1985; Kouzes and Posner,

1988). Empowerment is found to have a positive relationship with employee commitment and loyalty (Fulford and Enz, 1995; Niehoff *et al.*, 1990). Niehoff *et al.* (2001) find that empowerment affects loyalty indirectly through job enrichment. Hackman and Oldham (1976) see an enriched job as one that has more variety, identity, significance, autonomy, and feedback. They indicate that job enrichment positively influences job satisfaction, intrinsic motivation, and work quality and negatively influences turnover and absenteeism.

3.2.2.4 Feedback

The importance of using feedback and its effect on job performance and job satisfaction has been well documented (Tosti, 1986; Harless, 1990; Wiley, 1997; Spitzer, 1999). Harless (1990) notes that follow-up is a very important step in performance improvement interventions. Alexander and Fred (2003) indicate that feedback has a significant impact on task performance. Feedback is seen to moderate the goal difficulty-performance relationship (Earley *et al.*, 1990). This factor has been discussed in detail in chapter 2 and section 3.2.1.4.

Therefore, performance feedback plays an important role in numerous organisational activities such as career development, motivation, job satisfaction, and performance management (McCarthy and Garavan, 2001).

3.2.3 Leadership of Top Management

Leadership of top management is conceptualised in terms of involving employees in the decision-making process (McGregor, 1960; Likert, 1967; Oakland, 1995), organisational orientation (Thomas *et al.*, 1991; Pelham, 2000), and strategic planning (Griffin, 2000; Robinson and Pearce, 1988).

3.2.3.1 Involvement in Decision-making

Participative management involves employees in problem-solving, decision-making, and teamwork. This helps employees to feel valued and competent, and in turn increases their sense of their own relevance to organisational goals and achievement (Keller, 1999).

Involvement of employees by top management in organisational decision-making is found to increase trust in management (e.g., McCauley and Kuhnert, 1992; Oakland, 1995) and increases profit and productivity (Rosenberg and Rosenstein, 1980). Mueller and Lee (2002) find that the quality of leader-member exchange (LMX) affects subordinates' perceptions of communication satisfaction in interpersonal, group, and organisational contexts.

When the organisational member participates in the formulation and implementation of policies then both the organisation and its members benefit (McGregor, 1960; Likert, 1967). Benefits are to be seen in the areas of productivity, commitment to the aims of the organisation, and in the personal growth of staff. Participation in this context is defined as "direct involvement in internal decision making" (Mintzberg, 1983, p. 545). Creating a more participative environment in the organisation promotes involvement of employees in the decision-making process. Pursuing goal setting through the direct involvement of staff at all levels can provide a means of operationalising the vision for change and hence enables and motivates the staff to share in the implementation of change through the guidance of leadership (Hugman and Hadley, 1993).

3.2.3.2 Organisational Orientation

Organisational orientation refers to the extent to which top management of the organisation focuses on internal and external issues that relate to meeting external needs and maintaining competitive advantages (Reed *et al.*, 1996; Tosti and Jackson, 1996). According to Shim *et al.* (2002), organisational orientation is dependent on the type of leadership of top management. Based on Quinn's (1984) model of competing leadership roles, they propose that in order for an organisation to meet external needs and maintain competitive advantages its top management should focus appropriately on internal as well as external issues and go for a structure that is stable in a way but flexible in another way. They propose that top management should pose the necessary level of the eight leadership roles identified by Quinn (1984): innovator, broker, producer, director, coordinator, monitor, facilitator, and mentor. Miller *et al.* (1993) see that as organisations relate to the external market they should hold some professional beliefs such as a particular organisational orientation to the external market, compliance with industrial and legislated standards, or corporate standing in society. These professional beliefs should also relate to how the organisation should be managed internally.

In a study that is based on Miles and Snow's (1978) typology, Thomas *et al.* (1991) developed a theoretical model that explains the impact of the fit between top executive characteristics and strategic orientation on organisational performance. They found that firms achieving a greater degree of alignment between their strategy and the profiles of top managers generally achieved better performance outcomes. A recent study by Pelham (2000) reported that market orientation has a positive role on growth/differentiation strategy and performance. He considered the critical market orientation elements as fast response to negative customer satisfaction information, strategies based on

creating value for customers, immediate response to competitive challenges, and fast detection of changes in customer product preferences.

3.2.3.3 Strategic Planning

Chandler (1962, p. 3) defined strategy as "the determination of the basic long-term goals and objectives of an enterprise, and the adoption of action and the allocation of resources necessary for carrying out these goals". Strategy is also defined in terms of the basic characteristics of mechanism that align the organisation with its environment (Hofer and Schendel, 1978, p. 5; Miles and Snow, 1984, p. 11).

Miles and Snow's (1978) typology of strategy types has been used extensively in the literature of strategic management. Miles and Snow's (1978) typology classifies strategy types into four: defender, prospector, analyser, and reactor. Prospector organisations tend to be industry pioneers by developing new products/services and seeking new opportunities in the market. In contrast, defender businesses adopt a conservative view of strategy and try to hold a secure market position within their narrow market segments by focusing on price, quality and service. Analyser firms share elements of defender and prospector firms by respectively maintaining a secure position in a core market while seeking new market opportunities through product/service development. Finally, reactor organisations do not have long-term goals or articulated strategies for competing in and adapting to the marketplace and, hence, they do not pose a consistent pattern of behaviour (Miles and Snow, 1978).

Strategic planning has been conceptualised in terms of formality (e.g., McKiernan and Morris, 1994), comprehensiveness (e.g., Fredrickson and Mitchell, 1984), sophistication (e.g., Robinson and Pearce, 1988), and length of planning horizon

(e.g., Rhyne, 1986). It refers to the identification of the necessary activities; along with resources, cost, and schedule; required to be implemented in order to achieve the business goals and in accordance to the company strategy (Griffin, 2000).

Miller and Cardinal (1994), using meta-analysis, found that strategic planning positively influences firm performance and they referred the inconsistencies reported in the literature to the methods of study used. A positive relationship between strategic planning and firm performance has been found by many researchers in different types of firms and sectors such as small and medium sized enterprises – SMEs (McKiernan and Morris, 1994), banks (Hopkins and Hopkins, 1997), and hotels (Phillips *et al.*, 1999).

Robinson and Pearce (1988) conducted a study investigating the impact of strategy content and the strategy planning process on organisational performance. They found that organisations with strategic orientations focusing on product innovation, or those focusing on efficiency and differentiation patterns of strategic behaviour showed significantly higher levels of performance. They also showed that level of planning sophistication moderates the strategy-performance baseline.

3.2.4 Resources

Resources refer to the existence of what people need to produce outputs. They are what must be present for the output to happen. Resources include both tangible and intangible assets and capabilities an organisation controls or seeks to control such as tools and materials, time, information technology, sufficient expertise personnel, information, systems and processes for work, and availability of training (Gilbert, 1978; Chrisman *et al.*, 1998; Barney, 1991; Grant, 1991). In

order for organisations to produce a given level of organisational output and attend to internal and external issues, they must have resources that are in excess of the minimum necessary to produce a given level of organisational output (Bourgeois, 1981; Geiger and Cashen, 2002). The concept of having resources exceeding the minimum required level is covered in the organisational slack literature. Slack has been defined in the literature from different perspectives. For example, Cyert and March (1963, p. 36) defined slack as "the disparity between the resources available to the organisation and the payments required to maintain the coalition". Similarly, Dimmick and Murray (1978, p. 616) defined slack as "those resources which an organisation has acquired which are not committed to a necessary expenditure. In essence, these are resources which can be used in a discretionary manner". More recently, Nohria and Gulati (1996, p. 1246) defined slack as "the pool of resources in an organisation that is in excess of the minimum necessary to produce a given level of organisational output". The definition of Nohria and Gulati (1996) is considered for the purpose of this study.

Resources are considered to be an important organisational factor that influences performance and motivate employees towards work outputs (Gilbert, 1978; Langdon, 1994; Brethower, 1995; Tosti and Jackson, 1996; Amabile, 1997; DeTienne, 1995). In proposing the resource-based view (RBV) of the firm, Barney (1991) argues that resources, which are rare, valuable, inimitable, and non-substitutable, can provide sources of sustainable competitive advantages. This view is supported by Conner (1991) and Hoskisson *et al.* (1999). Mullins and Cardozo (1992) explain that new venture strategy may be viewed in terms of domain, objectives, resource availability, and strategic means. Chrisman *et al.* (1998, p.7) consider the availability of resources as an important factor in the field of strategic management. They note that: "Strategic management theory suggests that a business unit's performance is both directly and indirectly related

to the environment of the industry in which it competes, the resources it controls, the strategy it uses to align available resources with environmental opportunity, and the organisational structure, processes, and systems it employs to implement its chosen strategy". Slack is seen to give the organisation the ability to experience strategic innovation (Cyert and March, 1963), and execute a greater number of competitive advantages (Young *et al.*, 1996).

3.2.5 Clarity of Processes

Process management and control are considered to be important in the management of quality (Oakland, 1989). Managing processes effectively requires that these processes be clear to employees and their managers. Clarity of processes is operationalised here as the extent to which employees perceive standards, systems, processes and procedures in their workplace to be clear.

Since managers need to judge and evaluate their employees' performance, clear systems and procedures are needed in the workplace. Clear systems and procedures make it easier for the employees to understand work processes and perform their tasks in an efficient and effective way, and for the managers to excel leadership and evaluate their employees' performance (Shrock and Geis, 1999). Standards-based appraisals are seen to be effective ways to support and document decisions regarding employees' performance appraisals and promotions (Eyres, 1999). Expressing standards precisely and making processes very clear to employees move away from subjectivity to objectivity and enable managers to provide specific performance feedback that can be accepted easily by their employees.

The implication of having clear standards is that employees will feel fair treatment by their manager and discrimination is removed in the organisation.

This has a positive impact on employee satisfaction and motivation (Eyres, 1999). Moreover, it is expected that employees will perform their tasks very easily and hence improve their efficiency and effectiveness at work. Work methods and procedures are seen to be system factors that affect human performance in the workplace (Spitzer, 1999; Gilbert, 1978).

3.2.6 Financial Benefits

Incentives are a category of organisational factors that affects the influence aspects of the individual employee and hence affects his or her performance in the workplace and they involve aspects of what can develop and motivate individuals (Waldman, 1994). Griffin (2000, p. 286) defines rewards as "the formal and informal mechanism by which employee performance is defined, evaluated and rewarded". An incentive is defined as "something that influences a person to act in certain ways" (Thiagarajan *et al.*, 1999). There is a variety of incentives available for rewarding employee's performance. These incentives fall into two main categories: financial (monetary) and non-financial (non-monetary) benefits. Non-financial benefits are discussed in subsection 3.3.7. Financial benefits include salaries, allowances, bonuses, and other perquisites such as loan, gifts and club membership.

The motivational influence of monetary incentives in increasing performance has been documented by many researchers (e.g., Lawler, 1987; Beer, 1993; Antonioni, 1994; Cumming, 1994). Evidence from the field is found to generally support a positive relationship between performance-based financial incentives and performance (Prendergast 1999; Guzzo and Katzel 1987; Libby and Lipe 1992). Murphy (1985) and Coughlan and Schmidt (1985), using regression analysis, found that incentive compensation has a positive significant relationship with sales growth and shareholder returns. Bonner *et al.* (2000) finds that the type

of task and type of performance-based financial incentive interact to affect task performance.

3.2.7 Non-financial Benefits

Non-financial benefits include improved working conditions, facilities, tools and equipment, job design, training, and career development opportunities. (Thiagarajan *et al.*, 1999; Waldman, 1994; Gilbert, 1978; Herzberg *et al.*, 1959; Maslow, 1954). Non-financial benefits are considered as recognition and rewards for employee performance.

It is very important that employees perceive their organisation as one that recognises their efforts and achievement. Performance-based incentives are considered as a critical factor that influences human performance in the workplace (Gilbert, 1978; Stolovitch and Keep, 1999; Fuller and Farrington, 1999; Klein, 1989). Gilbert (1978) sees that aligning employee incentives with organisational goals and communicating these goals with their aligned incentives to the employees help in the success of the organisation.

Recognition is considered as an important need and motivator for people (Maslow, 1954; Herzberg *et al.*, 1959). Recognising employees' achievement can reinforce their desire to continue achieving what they have been recognised for (Skinner, 1958). Therefore, it is expected that when employees are recognised for their good quality work and achievements, they will be highly motivated to maintain their quality work and become more oriented towards continuous improvement. Once some reward is associated with a certain performance, then people are motivated to behave in some way to meet the performance target and associated reward. In this regard, rewards can reinforce positive behaviour

patterns toward achieving the stated targets. So, a reward is expected to have a positive impact on employee motivation.

Rewards refer to the extent to which employees perceive their organisation as providing benefits to employees that are contingent upon performance. Performance-based rewards are seen to be an important element that influences employee behaviour in the workplace (Klein, 1989). Once some reward is associated with a certain performance, then people are motivated to behave in some way to meet the performance target and associated reward. In this regard, rewards can reinforce positive behaviour patterns toward achieving the stated targets. So, non-financial benefits are expected to have a positive impact on employee motivation and performance.

Also, it is recognised that different people have different incentives and individuals have different ideas about what makes them effective (Clark, 1999). The knowledge that different people have different perceptions about what encourage them to do more work is important for managers to design dynamic incentive systems and maximise the utilisation of their human resources.

3.2.8 External Perception and Identity

External perception and identity refers to the extent to which employees identify with their organisation as a result of perceiving that the organisation they belong to is one that is valued by customers and the society. External perception and identity is conceptualised here in terms of corporate identity (Abratt, 1989; Balmer and Wilkinson, 1991; Balmer, 1995), external prestige (Balmer and Stotvig, 1997; Smidts *et al.*, 2001), and corporate social responsibility (Webster, 1975; Mohr *et al.*, 2001).

3.2.8.1 Corporate Identity

Within the literature, there are divergent views of what is meant by corporate identity and a definitive construct of corporate identity and its measurements does not yet exist (Balmer and Wilson, 1998; Melewar and Jenkins, 2002). Corporate identity research still lacks consensus as to its basic conceptualisation and definition (Balmer and Wilkinson, 1991). The general concept of corporate identity explains a variety of activities such as designing a new logo, interior decoration, sales force training, all the way up to changing the corporate culture (Van Rekom, 1997).

Many researchers have defined corporate identity from different perspectives, mainly from the graphic design perspective (Olins, 1995; Markwick and Fill, 1997), from the corporate communication perspective (Blauw, 1995), and from organisational behaviour perspective (Abratt, 1989; Balmer and Wilkinson, 1991; Balmer, 1995; Hatch and Schultz, 1997; van Riel and Balmer, 1997).

Researchers who define corporate identity from a graphic design perspective focus on visual and tangible aspects of identity. The focus of the graphic design school is on "the symbols an organisation uses to identify itself to people" (Dowling, 1994, p. 8). Many researchers of this school perceive corporate identity as to how an organisation presents itself to its various stakeholders and the means by which it distinguishes itself from other similar organisations (Markwick and Fill, 1997). Olins (1995, p. 3), for example, defines corporate identity as "the explicit management of all the ways in which the organisation presents itself through experiences and perceptions to all its audiences". Another definition of corporate identity is that it is "the organisation's presentation of itself to its various stakeholders and the means by which it distinguishes itself from all other organisations" (Markwick and Fill, 1997, p. 397).

This visual perspective of conceptualising corporate identity uses corporate identity as a marketing tool and focuses on what the organisation wants to become in visual terms (desired identity) and ignores the operational reality of the organisation in terms of employees' behaviour within the organisation (actual identity; Van Rekom, 1997; Millward, 1995). The desired identity of the organisation refers to its vision and mission (Balmer and Soenen, 1999) while the actual identity refers to what the organisation is in terms of its values which influences the mind-sets and behaviours of organisational members (Balmer, 1995; Van Rekom, 1997).

Some researchers go beyond just visual identity and include non-visual means and look at corporate identity from corporate communication perspective (Bernstein, 1986; Van Riel, 1995) and aim to communicate the personality of the organisation (Abratt, 1989). In such regard, Blauw (1995, p. 30) defines corporate identity as "the total of visual and non-visual means applied by a company to present itself to all its relevant target groups on the basis of a corporate identity plan".

Several academics have taken a wider view in looking at corporate identity and go beyond just symbolic representation and look at how an organisation performs, thinks, feels, behaves and interfaces with the external world through its employees (Abratt, 1989; Balmer and Wilkinson, 1991; Balmer, 1995; Hatch and Schultz, 1997; Van Riel and Balmer, 1997). Such approach defines corporate identity in terms of what an organisation is as seen by its employees in the way they go about their work. The academics of this approach suggest an integrated, multidisciplinary approach that draws heavily on organisational behaviour in addition to marketing and corporate communications (Balmer, 1995; Hatch and Schultz, 1997; Van Riel and Balmer, 1997). This approach has been based on the increasing recognition of the strong link between marketing and organisational

behaviour with regard to corporate identity research by including the notion of corporate culture in the conceptual models of corporate identity/image formation (Abratt, 1989; Baker and Balmer, 1997; Dowling, 1994). In this regard, Van Riel (1997, p. 290) defines corporate identity as "the self presentation of an organisation, rooted in the behaviour of individual organisational members, expressing the organisation's sameness over time or continuity, distinctiveness, and centrality".

In order to develop a corporate identity for the organisation, Balmer and Soenen (1999) adopt the concept of the desired identity, which focuses on the vision and main objectives of the organisation. When such desired identity is communicated externally in an effective way, it can lead to a favorable market image and promote competitive advantage. However, such desired corporate identity may differ from the actual corporate identity. Organisations tend to create a match also between their desired corporate identity and their corporate image as seen by the outsiders. While corporate identity focuses on "what the firm is", corporate image focuses on "what the firm is perceived to be" (Alessandri, 2001). This perspective tries to establish a connection between employees' daily activities and the external world to the organisation. The increased emphasis of firms on networking, customer care and total corporate communications, has made it necessary for organisational members to manage external relations as an integral part of their daily activities (Hatch and Schultz, 1997). For example, the emphasis on customer care makes the employees who interface with customers under pressure to interface with the customer as representatives of the organisation in the way they think, feel and behave which requires these employees to "sign on to the organisational paradigm" (Kiriakidou and Millward, 2000).

The concept of corporate identity addresses the question "Who are we?" in a way that attaches meaning and justification to the organisation (Ashforth and

Mael, 1996). Answering this question can motivate strategic decisions and actions (Kiriakidou and Millward, 2000). This requires a cultural change. Culture plays an important role in the development of corporate identity (Hatch and Schultz, 1997). In this context, Kiriakidou and Millward (2000, p. 50) define culture as "the corporate values that are held by staff and management and their concrete manifestation in organisational symbolism and behaviour, which frame the way that the organisation operates". So, the values held by organisational members are very important in the formation process of an organisation's identity (Abratt, 1989).

Keller (1985) sees that an important aspect of corporate identity is the extent to which employees identify with their organisations. According to Keller, this identification has two implications on employees. It exerts an influence on employee motivation to perform and it has a public relations impact when the employees deal with other business associates and the public. Corporate identity can play an important role when organisations face the challenge of continuing in ever-changing environments. Continuity and stability of an organisation and responding to external pressures at the same time are considered to be very important for employees and customers (Gorb, 1992). A positive corporate identity and image can help in strengthening the identity of an organisation (Albert and Whetten, 1985; Dutton and Dukerich, 1991; Thomas and Gioia, 1991) and the identification of employees to their organisation (Ashforth and Mael, 1989; Tajfel, 1982).

3.2.8.2 External Prestige

Balmer and Stotvig (1997) argue that the effective management of an organisation's identity results in the achievement of a positive corporate image and, over time, of a positive corporate reputation. This leads the organisation's

stakeholders to be liable towards it and the organisation's employees, who are part of its stakeholders, will be inclined to work for such organisation. Establishing a positive corporate image can result in a positive external prestige as perceived by organisational members.

Perceived external prestige refers to the extent an employee thinks outsiders view his or her organisation and therefore him or herself as a member of that organisation (Smidts *et al.*, 2001). Employees' perceived external prestige can result from different sources of information, such as the opinions of external reference groups/companies, word of mouth, publicity, and internal communication about how the company is perceived by outsiders (Smidts *et al.*, 2001). People may feel proud to belong to an organisation when they believe that important outsiders see the organisation in a positive light (Smidts *et al.*, 2001). It is found that perceived external prestige influences organisational identification and enhances self-esteem (Mael and Ashforth, 1992; Bhattacharya *et al.*, 1995; Fisher and Wakefield, 1998; Pratt, 1998).

3.2.8.3 Corporate Social Responsibility

Generally, people like to work for organisations which take care of their society as well. It is expected that employees who work in such organisations will build up a positive perception and identity towards their organisations. This, in turn, is expected to positively influence their work motivation in their organisations. Such organisations are considered to pay attention to, what is called by researchers, "corporate social responsibility". There are several frameworks that examine the corporate social responsibility (CSR). The fundamentalist or the capitalist perspective of CSR considers the organisation as the beneficiary and, therefore, the individual shareholders get the benefits (Friedman, 1970). This perspective considers an organisation as socially responsible if it can "provide

jobs with good wages, sell wanted products of good quality at fair prices, provide reasonable service, pay bills on time, pay an equitable amount of taxes and provide an adequate return on investment...not to eliminate poverty, racism, illiteracy, and social injustice" (Schick *et al.*, 1985 pp. 38,39; cited in Kaufman *et al.*, 1997; emphasis in the original). So, beyond increasing the efficiency of the business, the only broader constraint that an organisation should consider may be legal (Lee and McKenzie, 1994). Organisations, anyhow, have to abide by laws and regulations.

Carroll (1991) looks at CSR from four perspectives or kinds of responsibilities: economic, legal, ethical, and discretionary (philanthropic). Each kind of responsibility can be a concern to the various stakeholders of the organisation (e.g., owners, customers, employees, the community, and the public at large). Kotler (1991) takes a societal marketing perspective to define CSR in terms of doing business in a way that maintains or improves both the customer and society's well being. Petkus and Woodruff (1992) include both avoiding harm and doing good to the definition of CSR. The definitions emphasise that a socially responsible company must have concerns beyond short-term profitability (Mohr, 1996). Petkus and Woodruff (1992) interpret CSR in terms of the firm's commitment to recognising or eliminating any harmful effects and maximising its long-run beneficial impact on society. The societal perspective of CSR specifies important areas of responsibility, such as obeying laws and ethical norms, treating employees fairly, protecting the environment, and contributing to charities.

Corporate social responsibility is demanded by the socially responsible consumer. Webster (1975, p. 188) defines the socially conscious consumer as "a consumer who takes into account the public consequences of his or her private consumption or who attempts to use his or her purchasing power to bring about

social change". Mohr *et al.* (2001) adopt this approach and define socially responsible consumer behaviour (SRCB) as "a person basing his or her acquisition, usage, and disposition of products on a desire to recognise or eliminate any harmful effects and maximise the long-run beneficial impact on society." So, by definition, a socially responsible consumer would avoid buying products from companies that harm society and, on the other hand, buy products from companies that help society.

Mohr *et al.* (2001) conclude that the fact that a group of consumers who actively practices SRCB exists contradicts a common assumption that consumers base their buying only on their immediate self-interest. So, organisations have an opportunity to respond to this group of consumers by meeting both their business objectives and making a contribution to society. This should encourage organisations to develop marketing communications that provide information to the consumers about how they have helped address specific social issues (Andreasen, 1995). Peter Drucker (1984, p. 62) defines CSR from the perspective that an organisation must convert its social responsibilities into business opportunities: "But the proper 'social responsibility' of business is to tame the dragon, that is to turn a social problem into economic opportunity and economic benefit, into productive capacity, into human competence, into well-paid jobs, and into wealth". Consumers with SRCB, on the other hand, question the motives for CSR. Therefore, organisations need to develop consumer trust and develop CSR programmes that are meaningful and credible to the consumers (Mohr *et al.*, 2001).

Let us summarise now the discussion in section 3.2. The section discussed in detail, in eight subsections, the eight independent factors that act as antecedents to motivation and performance: 1) Work Environment, 2) Relations with Manager, 3) Leadership of Top Management, 4) Resources, 5) Clarity of

Processes, 6) Financial Benefits, 7) Non-financial Benefits, and 8) External Perception and Identity. These eight factors are conceptualised into one major construct named "Motivation and Performance Antecedents" (See figure 3.1). It is shown in this section (subsections 3.2.1 to 3.2.8) how these factors positively influence employee motivation, individual performance, and organisational performance.

The first independent factor "Work Environment" was conceptualised in terms of person-organisation fit, relations with colleagues and teamwork, satisfaction with working conditions, and open communication (see subsection 3.2.1). Perceiving the work environment as effective has a positive impact on employee's motivation, satisfaction and performance (Newman, 1997). Person-organisation fit is found to result in satisfaction, commitment, low intention to leave (Downey *et al.*, 1975; Posner *et al.*, 1985; Tziner, 1987), task performance (Tziner, 1987), and positive outcomes (Judge, 1995). Effective relations with colleagues and teamwork were found to result in higher work motivation, higher cooperative intentions and interpersonal relations, greater work satisfaction, fewer disciplinary problems, and higher quantity and quality performance (Jin, 1993). Satisfaction with working conditions is important for job satisfaction and performance (Hezberg *et al.*, 1959; Maslow, 1954; Alderfer, 1972). Open communication is found to have a strong impact on job satisfaction and performance (Pincus 1986; Pettit *et al.*, 1997).

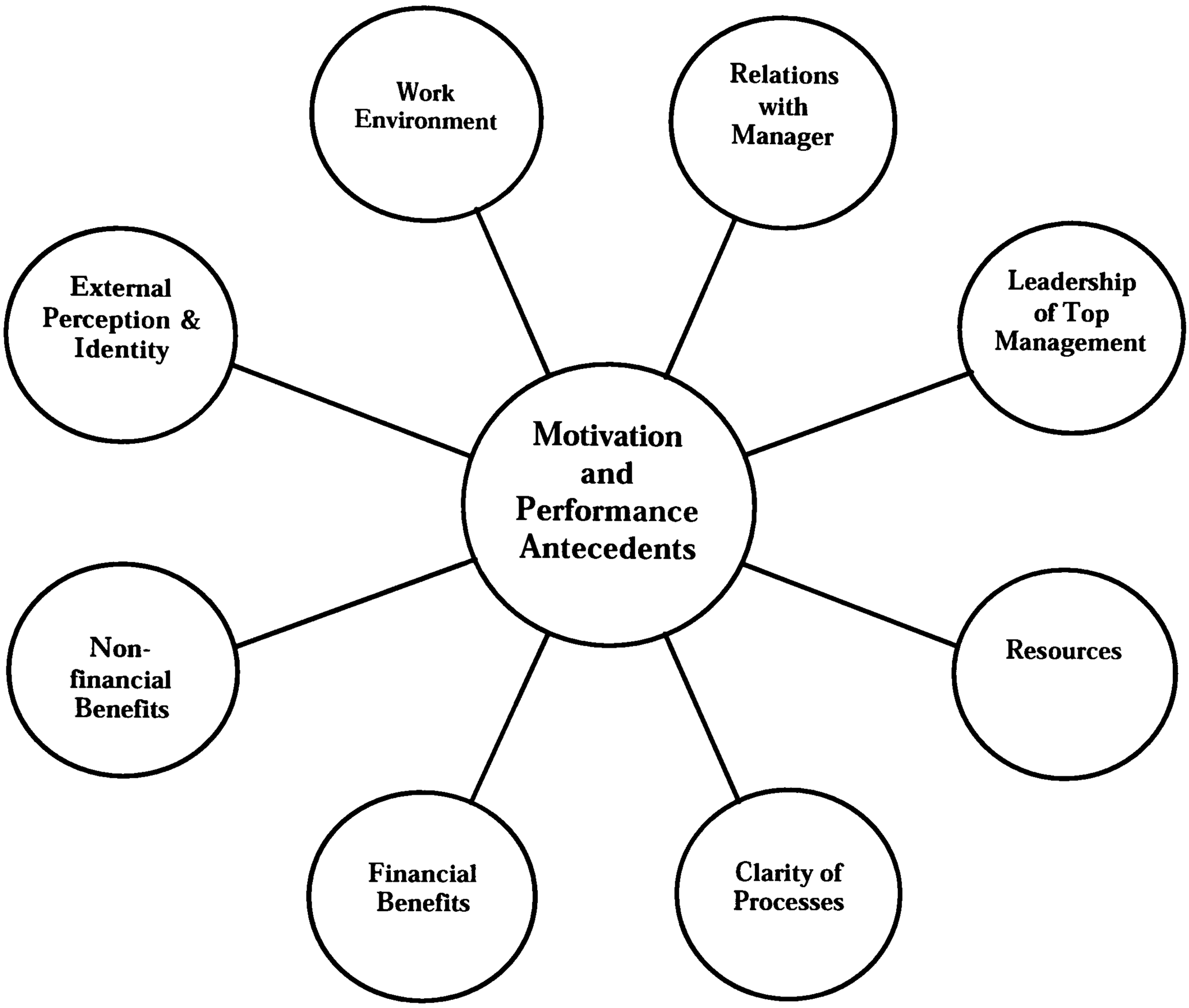

Figure 3.1 Motivation and Performance Antecedents

The second independent factor "Relations with Manager" was conceptualised in terms of trust relationship between superior and subordinates, superior's ability to guide and counsel his/her subordinates, superior's empowerment to his/her subordinates, and superior's feedback to his/her subordinates (see subsection 3.2.2). Job satisfaction, motivation, and performance were found to be positively influenced by trust relationship between superior and subordinates (Rotter 1967; Hosmer, 1994; Hummels and Roosendaal, 2001), superior's ability to guide and counsel his/her subordinates (Deming, 1986; Juran, 1989; Beer and Walton, 1987; Sandell, 1979), superior's empowerment to his/her subordinates (Oakland,

1995), and superior's feedback to his/her subordinates (Tosti, 1986; Harless, 1990).

The third independent factor "Leadership of Top Management" was conceptualised in terms of involvement in decision-making, organisational orientation, and strategic planning (see subsection 3.2.3). Job satisfaction, motivation, and performance were found to be positively influenced by involving employees in the decision-making process (McGregor, 1960; Likert, 1967; Oakland, 1995), organisational orientation (Thomas *et al.*, 1991; Pelham, 2000), and strategic planning (Griffin, 2000; Robinson and Pearce, 1988).

The fourth independent factor "Resources" was conceptualised in terms of both human and physical resources as to what is required to do the job and attend to internal and external issues (see subsection 3.2.4). Resources are considered to be an important organisational factor that influence performance and motivate employees towards work outputs (Gilbert, 1978; Langdon, 1994; Brethower, 1996; Tosti and Jackson, 1996; Amabile, 1997; DeTienne, 1995).

The fifth independent factor "Clarity of Processes" was conceptualised in terms of sufficiency and clarity of systems and standards (see subsection 3.2.5). Having sufficient and clear standards is found to have a positive impact on employee satisfaction, motivation (Eyres, 1999), and performance (Spitzer, 1999; Gilbert, 1978).

The sixth independent factor "Financial Benefits" was conceptualised in terms of performance-based monetary incentives (see subsection 3.2.6). Performance-based monetary incentives are found to have a positive relationship with individual performance (Prendergast 1999; Guzzo and Katzel 1987; Libby and Lipe 1992), sales growth and shareholder returns (Coughlan and Schmidt, 1985).

The seventh independent factor "Non-financial Benefits" was conceptualised in terms of job security, health services, training and career development opportunities, and recognition (see subsection 3.2.7). Job satisfaction, motivation, and performance were found to be positively influenced by job security, health services (Maslow, 1954), career development opportunities (Maslow, 1954; Alderfer, 1972; Gilbert, 1978; McClelland, 1961), training (Harless, 1994; Deming, 1986; Crosby, 1979) and recognition (Maslow, 1954; Alderfer, 1972; Herzberg *et al.*, 1959; Skinner, 1969).

The eighth independent factor "External Perception and Identity" was conceptualised in terms of corporate identity, external prestige, and corporate social responsibility (see subsection 3.2.8). Job satisfaction, motivation, and performance were found to be positively influenced by corporate identity (Abratt, 1989; Balmer and Wilkinson, 1991; Balmer, 1995), external prestige (Balmer and Stotvig, 1997; Smidts *et al.*, 2001), and corporate social responsibility (Webster, 1975; Mohr *et al.*, 2001).

All the eight independent factors discussed above are shown to have a positive impact on employee motivation, individual performance, and organisational performance. The eight factors are conceptualised into one major construct named "Motivation and Performance Antecedents". Based on the above discussion, the following hypotheses are proposed:

Hypothesis 1: *Motivation and Performance Antecedents positively influence Employee's Motivation*

Hypothesis 2: *Motivation and Performance Antecedents positively influence Employee's Individual Performance.*

Hypothesis 3: *Motivation and Performance Antecedents positively influence Organisational Performance.*

3.3 Motivation

Generally, motivation is described in terms of activation, direction, and maintenance of behaviour (Kast and Rosenzweig, 1985; Ambrose and Kulik, 1999). It is concerned with what drives individuals to achieve some goals in order to satisfy some needs or expectations (Kast and Rosenzweig, 1985). The concept of motivation was discussed in detail in chapter 2. Motivation is conceptualised here as the inner force that drives individuals to accomplish personal and organisational goals.

The indirect effect of employee motivation on individual performance has been extensively studied by researchers in terms of examining the motivation factors and individual performance (see section 2.4 for details). However, the direct effect of the components of motivation (activation, direction, and maintenance of behaviour) and individual performance has received very little attention by researchers. Ambrose and Kulik (1999) note that there was only one study (Blau, 1993) that examined these components and their effects on individual performance. Blau (1993) operationalised direction and level of effort components and examined the extent to which each component uniquely accounted for individual job performance. His results indicated that effort level and direction of effort are each important in explaining individual performance. Also, employee motivation is seen to have a positive impact on employee capacity to perform (Littlejohn, 2001).

Based on what has been discussed above, the following hypotheses are proposed for testing:

Hypothesis 4: *Employee's Motivation positively influences his/her Individual Performance.*

Hypothesis 5: *Employee's Motivation positively influences his/her Capacity to Perform.*

3.4 Capacity to Perform

Capacity to perform refers to the employee's capacity or potential capacity to complete a specific task successfully. Capacity to perform is an integral part of human ability. Implicit theories of abilities are classified into two types. The first type is *entity theory of ability* in which ability is conceptualised as a fixed and unchangeable trait that can be measured or evaluated. The other type of implicit theory of ability is *incremental theory of ability*, which conceptualises ability as malleable, and constantly developing in an incremental manner through an individual's efforts to improve capacity to perform (Dweck *et al.*, 1995; Dweck and Leggett, 1988).

Thinking of ability as a fixed and unchanging trait results in viewing the feedback of one's ability negatively by both the manager and the employee, because the employee, using this view, is seen to either pass or fail. Thinking of ability as developmental (incremental theory of ability), however, results in viewing the feedback of one's ability in a positive manner and each challenging situation is seen as an opportunity for incrementally developing one's capabilities (Maurer *et al.*, 2002).

Bierstaker and Wright (2001) found that practical problem-solving ability (PPSA) improves the capacity of auditors to perform auditing tasks. Abdel-Halim (1981) conducted a study of how employee ability moderates and effects the role perceptions/intrinsic satisfaction among managerial-level employees. They found that high-ability employees are more satisfied under conditions of high role conflict and ambiguity than low-ability employees.

Key components of capacity to perform include self-efficacy (Bandura, 1997; Gist and Mitchell, 1992; Sadri and Robertson, 1993), cognitive ability (Hunter

and Hunter, 1984; Ree *et al.*, 1994; Schmitt *et al.*, 1997; Bobko *et al.*, 1999), and knowledge and skills (Deming, 1986; Juran, 1989; Hunter, 1986).

3.4.1 Self-efficacy

Self-efficacy refers to the degree to which one believes he/she is capable of performing a behaviour (Bandura, 1977). It has been shown that self-efficacy is a key predictor of persistence to perform a behaviour or pursue a task (Bandura, 1997; Gist and Mitchell, 1992; Sadri and Robertson, 1993). "People's level of motivation, affective states, and actions are based more on what they believe than on what is objectively true" (Bandura, 1997, p. 2). So, an employee's self-esteem and confidence in his/her ability to do the work affects his/her performance. Therefore, it is important that the workforce managers try to develop a sense of success and a feeling in their employees that they can do something, rather than a feeling that they cannot. Also, people with high level of self-efficacy for development are more motivated to favor a feedback system that informs them of the skills or abilities that need improvement and engage in development activities (Maurer and Tarulli, 1996; Maurer *et al.*, 2002). Self-efficacy for development refers to the extent to which one believes he/she is capable of improving his/her skills (Maurer *et al.*, 2002).

3.4.2 Cognitive ability

General cognitive ability (normally called "g" and is referred to the potential or traits that enhance the successful completion of the task) is defined as "those abilities which an intelligent creature possesses, of recognising diverse external objects and of adjusting its actions to composite phenomenon of various kinds, (and that) imply a power of combining many separate impressions" (Spencer, 1887, p.403 cited in Carter, 2002). Cognitive ability has been consistently

demonstrated to be a significant useful predictor and correlate of job performance in most jobs (e.g., Hunter and Hunter, 1984; Ree *et al.*, 1994; Schmitt *et al.*, 1997; Bobko *et al.*, 1999; DuBois *et al.*, 1993), career success (Judge *et al.*, 1999), leadership (Fiedler, 2001), and skill learning (Ackerman, 1987). It is used as one of the major criteria in the personnel selection process (Robertson and Smith, 2001). It is also argued that job knowledge largely mediates the relationship between cognitive ability and performance (Borman *et al.*, 1991; Hunter, 1983; Schmidt *et al.*, 1986). "Ability is highly correlated with job knowledge and job knowledge is highly correlated with job performance" (Hunter, 1986, p. 354). Researchers agree that an individual can have high levels of ability in some factors but low levels of ability in other factors (e.g., Heckman and Vytlacil, 2001; Kaufman, 1990).

3.4.3 Knowledge and Skills

TQM proponents have been emphasising the importance of generating system activities that are oriented toward the continuous training and development of employees. They point out that job-related competencies can best be retained over time by continuous training of employees (Deming, 1986; Juran, 1989). This emphasis is due to the fact that jobs and required skills are understood to be changing at ever increasing rates (Dobbins *et al.* 1991). So, if the employee gains the necessary knowledge and skills required to perform his/her job successfully, then his/her capacity to perform the job will be higher. This is why knowledge and skills is one of the important factors that affect job performance (Gilbert, 1978; Rummler and Brache, 1995; Spitzer, 1999; Fuller and Farrington, 1999; Rosenberg *et al.*, 1999; Harless, 1970).

To sum up, capacity to perform can be conceptualised in terms of the three constructs of self-efficacy, cognitive ability, and knowledge and skills. Capacity to

perform is seen to have a direct impact on individual performance. Based on the previous discussion, the following hypothesis is proposed for testing:

Hypothesis 6: *Employee's Capacity to Perform positively influences his/her Individual Performance.*

3.5 Individual Performance

Gilbert (1978) sees that performance is a function of the combination of behaviour (B) and accomplishment (A) that is valued; that is P = *f* (B, A). Performance is referred to as "accomplishments" (Gilbert, 1978), "the outcomes of behaviour" (Nickols, 1977, p.14) and "achievements" (Ryle, 1949). So, individual performance is concerned with the tasks carried out, or behaviours, by the individual that lead to achieving specific results that are valued. This implies that employee commitment to carry out the required behaviour is essential for obtaining the required performance and productivity (Porter and Lilly, 1996; Frankel and Otazo, 1992).

Individuals within the organisation who perform their designated parts of a core process contribute to the work of others and to the organisation as a whole (Langdon, 1991). Rummler and Brache (1990) indicate the importance of aligning individual performance and organisational performance by defining, designing, and managing, the two performance levels (individual and organisational). If this alignment is achieved, then individual performance is seen to impact organisational performance. Williams (2001) emphasises that the management of individual performance contributes to the achievement of organisational performance. As discussed in section 2.3, individual performance is the key to organisational performance (Gilbert, 1978; Brethower, 1982; Harless, 1990; Kaufman, 1992). Individual performance can impact

organisational performance if both individual performance and organisational performance are defined, designed, managed, and aligned with each other (Rummler and Brache, 1990).

Based on what has been discussed above, the following hypothesis is proposed for testing:

Hypothesis 7: *Employee's Individual Performance positively influences Organisational Performance.*

3.6 Organisational Performance

Any organisation is seen to have its own products or services that it offers to its clients. For any organisation to maintain its existence, it must provide its products or services to its clients in a satisfactory manner and compete with other organisations in the environment. Organisational performance is described in terms of financial and operational measures that include profit margin, return on assets (ROA), asset use efficiency, excess stock returns (Easton and Jarell, 1995) and gaining long-term competitive advantages (Lee, 2002).

It was discussed in detail how different Motivation and Performance Antecedents (section 3.3) and Individual Performance (section 3.6) influence Organisational Performance. Generally, employees like what they do well, and are therefore more likely to do it again and put in more effort in what they do well. If they put in more effort, their work generally gets better, and so this sustains their motivation. Feelings of being able to do something and feelings of sustained motivation are linked into an upward spiral of a self-perception of high motivation – high capacity to perform – high effort – high achievement – high motivation, and so on. This spiral relationship between motivation and capacity

to perform therefore leads to commitment and improved results in the workplace (Littlejohn, 2001). The implication of this spiral relationship is that when employees become aware of the organisational outputs achieved as a result of their efforts, they become more motivated and hence try to increase their capacity to perform their tasks again and again. So, feedback on performance influences motivation by providing information to employees that they are becoming more competent and capable.

Based on the above discussion, the following hypothesis is proposed for testing:

Hypothesis 8: *Organisational Performance positively influences employee's Motivation.*

3.7 Theoretical Framework and Hypotheses

The literature on TQM, HPT and work motivation indicates different perspectives towards motivational and performance outcomes. Factors that drive human performance in the work place are synthesised into a main construct named "Motivation and Performance Antecedents". The main construct "Motivation and Performance Antecedents" is conceptualised in terms of eight factors, which are Work Environment, Relations with Manager, Leadership of Top Management, Resources, Clarity of Processes, Financial Benefits, Non-financial Benefits, and External Perception and Identity (shown previously in figure 3.1). This study related this main construct to other four dependent constructs, which are Motivation, Capacity to Perform, Individual Performance, and Organisational Performance. This study proposes eight hypotheses for analysis and testing. The eight hypotheses (derived from the discussion in this chapter) are exhibited in table 3.1. The eight hypotheses derived from the literature can be contractedly combined together to postulate a model using

causal paths as shown in figure 3.2. This model and its attendant hypotheses can be empirically tested for its veracity.

The model presented in figure 3.2 shows how the five constructs are interrelated both directly and indirectly. The direct links are spelled out here. The variable "Motivation and Performance Antecedents" is seen to positively influence the variables Motivation (Hypothesis 1), Individual Performance (Hypothesis 2), and Organisational Performance (Hypothesis 3). The variable Motivation has a direct impact on Individual Performance (Hypothesis 4) and Capacity to Perform (Hypothesis 5) variables. The Capacity to Perform variable affects the Individual Performance variable (Hypothesis 6), which in turn affects the Organisational Performance variable (Hypothesis 7). The Organisational Performance variable is seen to positively influence the Motivation variable (Hypothesis 8).

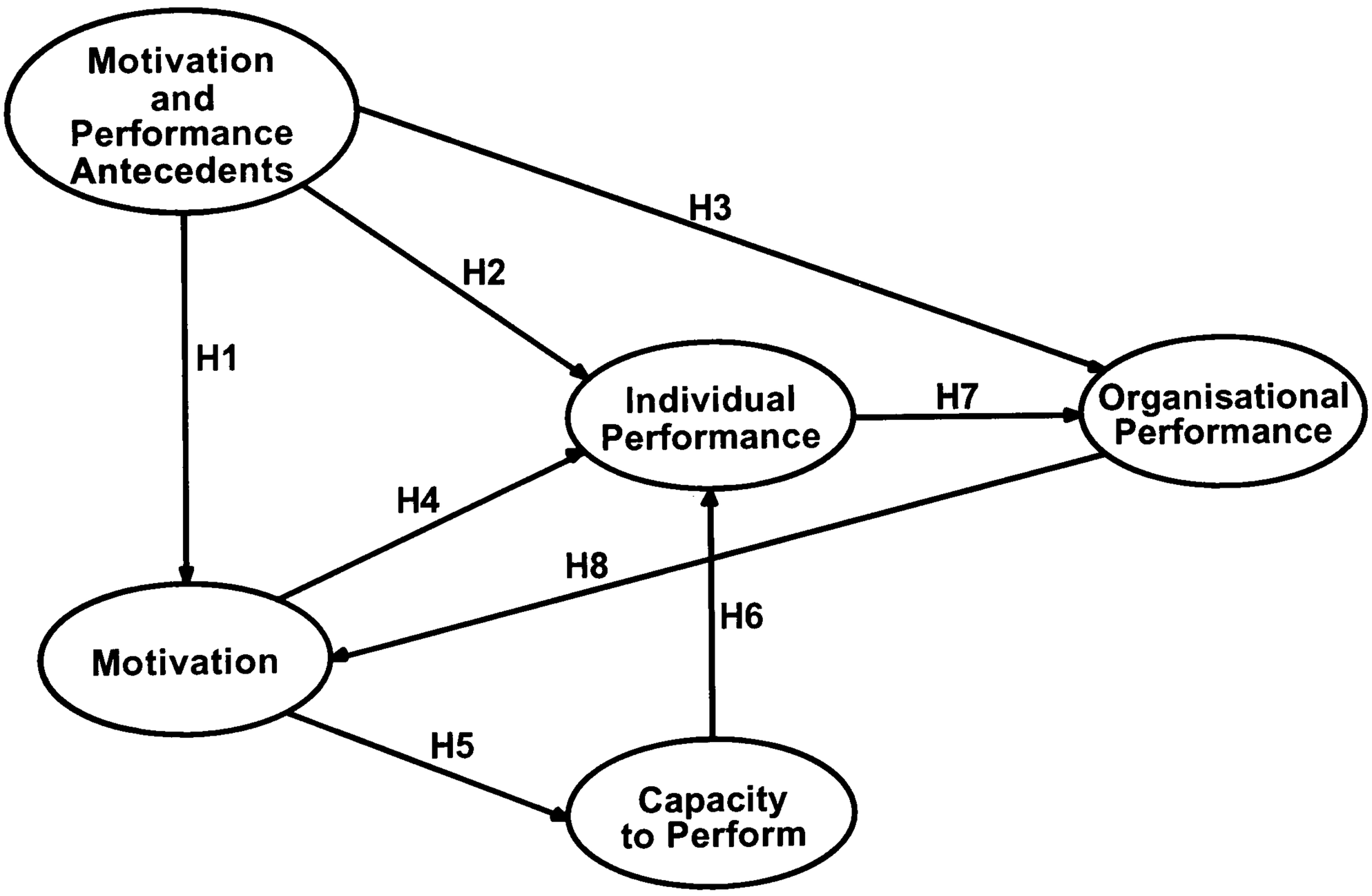

Figure 3.2 The Hypothesised Causal Model of Motivation and Performance

Figure 3.3 shows another presentation of the proposed model of motivation and performance, in which the operationalisation of the construct "Motivation and Performance Antecedents" is presented. The proposed model is further described and tested statistically in chapter 6 for analysis using structural equation modelling.

It is important to spell out the indirect causal links in the proposed model in order to understand the act of motivation as a mediator to human and organisational performance and draw further research hypotheses. The theoretical basis for each causal path of the eight hypotheses (H1 – H8) was established in the previous sections. First, to understand how human motivation mediates human performance, we need to consider the causal links between the independent variable Motivation and Performance Antecedents and the dependent variable Individual Performance through the variable Motivation. Examining figure 3.2, one can see that there are two routes from Motivation and Performance Antecedents to Individual Performance through Motivation. In the first route, Motivation and Performance Antecedents influences Individual Performance indirectly through Motivation via the following two paths: Motivation and Performance Antecedents → Motivation (H1) and Motivation → Individual Performance (H4). The implication of this route (H1 + H4) is that the existence of the factors that were conceptualised as Motivation and Performance Antecedents leads to motivating employees in their workplace, which in turn makes them improve their task performance. In the second route, Motivation and Performance Antecedents influences Individual Performance indirectly through Motivation via the following three paths: Motivation and Performance Antecedents → Motivation (H1), Motivation → Capacity to Perform (H5), and Capacity to Perform → Individual Performance (H6). The implication of this route (H1 + H5 + H6) is that the existence of the Motivation and Performance Antecedents leads to employees' motivation. Motivated

employees will improve their capacity to perform their job, which in turn will have a positive impact on human performance. Based on this, the following hypothesis is proposed for testing:

Hypothesis 9: *Employee's Motivation mediates the relationship of Motivation and Performance Antecedents with Human Performance.*

To understand how human motivation mediates organisational performance, we need to consider the causal links between the independent variable Motivation and Performance Antecedents and the dependent variable Organisational Performance through the variable Motivation. Examining figure 3.2, one can see that there are two routes from Motivation and Performance Antecedents to Organisational Performance through Motivation. In the first route, the construct Motivation and Performance Antecedents influences the construct Organisational Performance through the construct Motivation via the following three paths: Motivation and Performance Antecedents → Motivation (H1), Motivation → Individual Performance (H4), and Individual Performance → Organisational Performance (H7). In the second route, the construct Motivation and Performance Antecedents influences the construct Organisational Performance through the construct Motivation via the following four paths: Motivation and Performance Antecedents → Motivation (H1), Motivation → Capacity to Perform (H5), Capacity to Perform → Individual Performance (H6), and Individual Performance → Organisational Performance (H7). In fact these two routes represents the same two routes discussed for Hypothesis 9 above added to them the causal path Individual Performance → Organisational Performance (H7). The implication of these two routes is that motivation and performance factors lead to improved employee' motivation, which in turn has a positive impact on employees' capacity to do their job and on their task performance. Their improved task performance will result in a positive impact

on organisational performance. Based on this, the following hypothesis is proposed for testing:

Hypothesis 10: *Employee's Motivation mediates the relationship of Motivation and Performance Antecedents with Organisational Performance.*

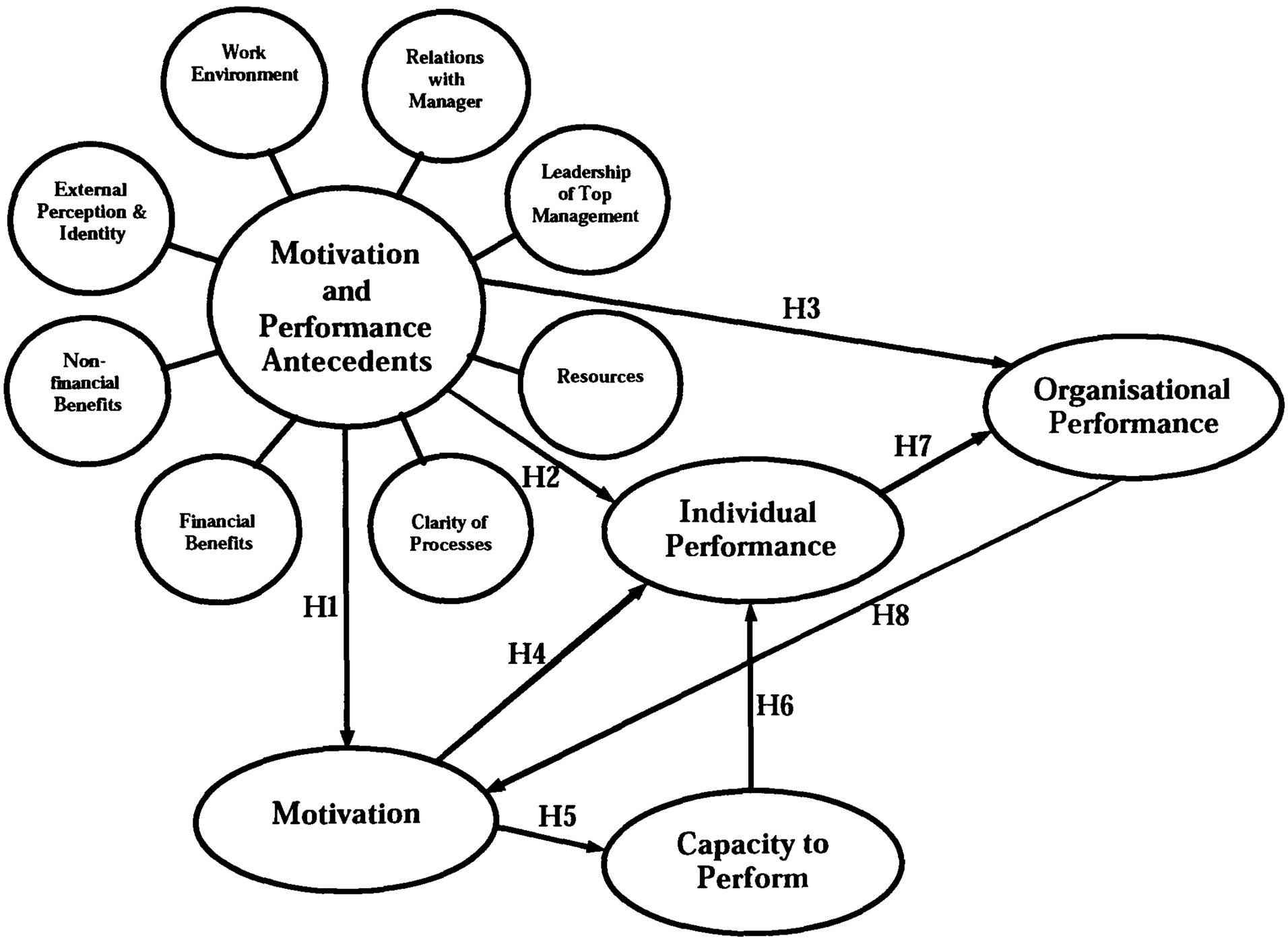

Figure 3.3 The Hypothesised Causal Model of Motivation and Performance

Table 3.1 Research Hypotheses

H1	***Motivation and Performance Antecedents positively influence Employee's Motivation***
H2	***Motivation and Performance Antecedents positively influence Employee's Individual Performance.***
H3	***Motivation and Performance Antecedents positively influence Organisational Performance.***
H4	***Employee's Motivation positively influences his/her Individual Performance.***
H5	***Employee's Motivation positively influences his/her Capacity to Perform.***
H6	***Employee's Capacity to Perform positively influences his/her Individual Performance.***
H7	***Employee's Individual Performance positively influences Organisational Performance.***
H8	***Organisational Performance positively influences employee's Motivation.***
H9	***Employee's Motivation Mediates the relationship of Motivation and Performance Antecedents with Human Performance.***
H10	***Employee's Motivation Mediates the relationship of Motivation and Performance Antecedents with Organisational Performance.***

3.8 Summary

This chapter described the development of the research conceptual framework and hypotheses. The method adopted in developing the research conceptual

framework and hypotheses is to operationalise and develop the variables of interest based on theoretical background and empirical findings from the literature. The chapter discussed and elaborated, in detail, five constructs that were identified and synthesised based on literature from Human Performance Technology (HPT), Total Quality Management (TQM), and work motivation conducted in chapter 2. These five constructs are: Motivation and Performance Antecedents, Motivation, Capacity to Perform, Individual Performance, and Organisational Performance. Based on theoretical background and empirical findings from the literature, the chapter proposed a number of hypotheses that examine the relationships between these five constructs. These hypotheses, derived from the literature, were contractedly combined together to postulate a model using causal paths as shown in figure 3.2.

The main construct "Motivation and Performance Antecedents" is conceptualised in terms of eight factors, which are Work Environment, Relations with Manager, Leadership of Top Management, Resources, Clarity of Processes, Financial Benefits, Non-financial Benefits, and External Perception and Identity. Figure 3.3 presents the proposed model of motivation and performance showing the eight elements of the construct Motivation and Performance Antecedents. The model suggests that the existence of these eight factors has both direct and indirect positive impact on human and organisational performance.

The proposed model of motivation and performance, shown in figure 3.2, reveals a generic framework that describes the relationships between the five constructs with the involvement of human motivation as a mediator to human and organisational performance. This model and its attendant hypotheses can be empirically tested for its veracity in the next stage of research.

CHAPTER 4 RESEARCH METHODOLOGY

4.1 Introduction to Methodology

This chapter describes and discusses first quantitative and qualitative research methodologies and other pertinent research issues in social sciences. It then describes the methodology and methods employed in this study to select the population and sample, construct and validate the data collection instrument, and collect and analyse the data. After that, the structural equation modelling (SEM) approach, employed by this study, is described in detail. Methodological issues concerning instrument validity, constructs' reliability, and model fit are also discussed. Finally, key descriptive statistics of the responses are presented.

4.2 Research Design

The research design is the overall plan that enables the researcher to come up with solutions to the research problems and guides him or her in the various stages of research mainly collecting, analysing and interpreting observations (Nachmias and Nachmias, 1996). Since research is undertaken to answer research questions, the appropriate research design needs to be effective in producing the required solutions of the research problems. So, the choice of research design influences subsequent research activities, for example, what and how data is to be collected, and it becomes essential that the research problem is understood if required solutions are to be produced (Ghauri *et al.*, 1995). Appendix B displays definitions of basic terms related to research methodologies and methods. Research can be divided into three main categories: exploratory, descriptive, and causal (Webb, 1992; Ali, 1998).

Exploratory research aims to uncover the boundaries of the environment in which the problems, opportunities or situations of interest are likely to reside and to discover the important variables that may be found there and which are relevant to the research project. Exploratory research is used under the following situations (Webb, 1992):

- The levels of uncertainty and of general ignorance of the subject in question are at their highest
- When the problem is not very well understood
- When the problem is unstructured.

Such research is characterised by a high degree of flexibility; and a lack of formal structure and is most useful in the preliminary stages of a research project.

Descriptive research aims to provide an accurate and valid representation of those variables discovered by exploratory research. When it is aimed to establish any causal links between those variables, then a **causal research** is used. In contrast to exploratory research, causal research is characterised by a low degree of flexibility and a formal structure and is most useful when a "cause and effect" relationship between one or more variable with other variables needs to be established. Table 4.1 relates the three types of research design and the levels of problem structure and flexibility.

Table 4.1 Research Design

Research Design	**Problem Structure**	**Flexibility**
Exploratory Research	Unstructured	High
Descriptive Research	Structured	Medium
Causal Research	Structured	Low

Referring to the descriptions of the three types of research, one can clearly identify the interconnection and relationship between them. It is clear from table 4.1 that as the research design change in nature from exploratory, through descriptive, to causal, there tends to be an increasing degree of formality and structure, and a decreasing degree of flexibility, in the way in which the research can be carried out. Exploratory research discovers the variables of a research problem while the descriptive research describes those variables and their "cause and effect" relationship is investigated using causal research. This implies that it is feasible to use a combination of exploratory, descriptive and/or causal research so that the objectives of the research can be fulfilled more effectively. It also implies that a combination of different methodologies and methods can be used when a combination of exploratory, descriptive and/or causal research is used. When multiple methods of data collection are used, the findings from each method need to be reconciled with one another. The process is known as "triangulation" (Ali, 1998; Nachmias and Nachmias, 1996).

Having chosen the broad area of study, selected a topic, and formulated broad research questions, deciding the appropriate approach and methodology for conducting the research needs to be addressed. The important and obvious issue is what methodology to use. "Choosing a methodology determines what we can study as well as the range of possible results and conclusions" (Adler *et al.*, 1989, p. 61). There are two main types of research methodology namely qualitative and quantitative methodologies. Each methodology is accompanied by a number of methods of data collection. The choice is whether to use qualitative, quantitative, or a combination of both methodologies. This section explores the differences between quantitative and qualitative methodologies and how the two methodologies could be combined using triangulation.

4.2.1 Qualitative Research

Qualitative research and methods are referred to using different terms such as "descriptive study", "field study", "participant observation", "case study" and "naturalistic research" (Ali, 1998; Yin, 1984; Kidder, 1981). Qualitative research is characterised by the following (Ali, 1998; Wright, 1995; Gill and Johnson, 1991):

- Purpose is understanding
- Oriented towards discovery
- Uses subjective data
- Extracts meaning from data
- Interprets results in context
- Focus is holistic
- Research that does not focus on numbers in its analysis.
- Data is usually in the form of words that have been recorded to represent observations
- Observations are usually made in the real world, as phenomena really happen
- Qualitative methods tend to use inductive thought processes (based on empirical evidence). Inductive thought transforms specific observations into general theory.
- Human understanding and interpretation define reality
- Complex reality can be understood only as amalgam and not as simply a sum of its parts
- Goal of research is to examine complex phenomena to define the reality within.

Examples of qualitative methods include observations, unstructured interviews, focus groups, participant observation, case studies, content analysis, videotaping, unobtrusive measures, archival data surveys, frame analysis, and historical comparative (Ali, 1998; Nachmias and Nachmias, 1996; Wright, 1995; Gill and Johnson, 1991).

The advantages and disadvantages of qualitative research can be summarised in table 4.2 below (Ali, 1998; Wright, 1995; Gill and Johnson, 1991).

Table 4.2 Advantages and Disadvantages of Qualitative Research

Advantages of Qualitative Research	Disadvantages of Qualitative Research
• Observing phenomena in natural/real life settings may allow researchers to develop a more accurate understanding of those phenomena. • Takes advantage of the richness of data and thus obtains more meaningful results. • Used for theory generation • Good way to understand consumers' motivations and feelings • Allows consumers to express thoughts "in their own words" • Allows researcher to draw insights directly from respondents • Can be cheaper and quicker than quantitative research • Flexible • Used when messy problems and complex issues are to be investigated especially when they are impossible to be examined using quantitative methods • Allows to examining what factors need to be considered, how these factors are related, and why they are selected. • In-depth examination of phenomena • Allows using subjective information • Not limited to rigidly definable variables • Deals with value-laden questions • Explores new areas of research • Builds new theories	• Subjectivity which leads to procedural problems • Poor Reliability-two researchers may arrive at different conclusions based on their observations of the same phenomenon at the same time • Relatively difficult and time Consuming • Results are not necessarily representative of the population • It does not distinguish between small differences • Findings cannot be described numerically • It's hard for a client to discern quality of the research • Qualitative researchers cannot rigorously examine the detailed structures underlying complex natural interactions • Researcher bias is built in and unavoidable • In-depth, comprehensive approach to data gathering limits scope • Labour intensive, expensive

4.2.2 Quantitative Research

Quantitative research uses systematic and sophisticated procedures to test, prove and verify hypotheses and theories (Glaser and Strauss, 1967). Its main focus is on matters pertaining to structural rather than on more complex issues of the process (Van Maanen, 1983). Quantitative research is characterised by the following (Ali, 1998; Wright, 1995; Gill and Johnson, 1991):

- Research that involves the use of numerical measurement and statistical data; measures and analyses social phenomena using numbers.
- Most common form of research.
- Probably best for "direct observables"; things that can easily be observed and counted
- Probably not that good for measuring the "unseen/internal" qualities of humans (e.g., self concept)
- Quantitative methods tend to use deductive thought processes (based on logic). Deductive thought transforms general theory into specific observations.
- Reality is independent of human understanding
- Reality can be defined as separate and observable variables
- Goal of research is to define and measure those variables
- Most accurate way to measure variables is individually and in isolation.

Examples of quantitative methods include questionnaires, structured or semi-structured interviews, in-depth open-ended interviews, direct observations, and government statistics (Ali, 1998; Nachmias and Nachmias, 1996; Wright, 1995; Gill and Johnson, 1991).

The advantages and disadvantages of quantitative research can be summarised as shown in table 4.3 below (Ali, 1998; Wright, 1995; Gill and Johnson, 1991):

Table 4.3 Advantages and Disadvantages of Quantitative Research

Advantages of Quantitative Research	Disadvantages of Quantitative Research
• Objectivity (appearance of objectivity) • Reliability-two different researchers, using the same measurement system are likely to arrive at the same measurement for same subjects • Relatively easy and not as time consuming as some other forms of research • Viewed as being more scientific and therefore is more respected by many • The standardised measurement and sampling procedures are intended to enhance the reliability of observation, facilitate replication studies, and allow generalisation to a larger population.	• Researchers are restricted to ask simple and easily understood questions • Restricts the answers of the respondents to the questions only • High cost in case of interviews • Low response rate in case of mail survey • Quantitative researchers fail to either adequately define or accurately measure enough of the variables to understand complex natural interactions, for example how do you really measure self-concept? • Reductionism i.e., a vast varsity of rich and complex phenomenon is reduced to a number of statistics.

To sum up, the differences between qualitative and quantitative methods can be summarised as shown in table 4.4 (Ali, 1998; Wright, 1995; Ghauri *et al.*, 1995, Glaser and Strauss, 1967).

Table 4.4 Comparison between Qualitative and Quantitative Methods

Qualitative Methods	Quantitative Methods
Interdependence	Independence
Linear and non-linear	Linear
Multiplicative, interactive	Cumulative, additive
Interdependent measures of the various realities	Deriving realities from measures of other realities
Inductive	Deductive
Emphasis on understanding	Emphasis on testing and verification
Focus on understanding from informant's point of view	Focus on facts and/or reasons of social events
Interpretation and rational approach	Logical and critical approach
Observation and measurements in natural settings	Controlled measurement
Subjective 'insider view' and closeness to data	Objective 'outsider view' distant from data
Explorative orientation	Hypothetical/deductive-focus on hypothesis testing
Process orientated	Result orientated
Holistic perspective	Particularistic and analytical
Generalisation by comparison of properties and contexts of individual organisms	Generalisation by population membership
Used mainly for theory generation and explanation	Used mainly for theory verification

Now, the question is, which approach is to be used for conducting a research project? Is it qualitative, quantitative, or combined approach? Knowing the answers to the following questions will help in deciding which approach to use:

- Who is the information for and who will use the findings?
- What kinds of information are needed?
- How will the information be used?
- When is the information needed?
- What resources are available?

4.2.3 Triangulation

From what has been discussed earlier, it can be appreciated that both qualitative and quantitative analyses have something to contribute to social sciences. Some researchers may perceive qualitative and quantitative methodologies as incompatible because they have different epistemological bases and using them together is mixing paradigms. However, the majority considers qualitative and quantitative methodologies as different ways of looking at phenomena and using them together is symbiotic. There has been a recent move in social science towards multi-method approaches, which tend to reject the narrow analytical paradigms in favour of the breadth of information, which the use of more than one method may provide (Ali, 1998; Nachmias and Nachmias, 1996).

Researchers who choose to use either a qualitative or a quantitative approach may have a tendency to be slaves to their methodology and this might lead them to come up with weak theories. "Theorists often writing trivial theories because their process of theory construction is hemmed in by methodological strictures that favour validation rather than usefulness" (Weick, 1989, p. 516). Combining qualitative methods to quantitative methods can make the resulting research more meaningful and have a greater probability of being valid, of actually measuring what it means to measure (Wright, 1995).

Research methodologists have, for many years, advocated the use of triangulation which is defined as the use of more than one method of data collection in conducting a research study to gather more reliable results (Wright, 1995; Brewer and Hunter 1989; McGrath *et al.* 1982). The Concept of triangulation originated in navigation characterised by navigators using known points, and the fact that the more known points/angles, the more accurate the "fix" on the unknown location.

The advantages of using triangulation can be summarised as (Ali, 1998; Wright, 1995; Gill and Johnson, 1991):

- Enhanced validity, reliability and defensibility of inferences, when the different methods converge on similar findings.
- Enhanced comprehensiveness of understanding, when the different methods offer different lenses on the program, for example, generality and particularity.
- Expansion of further research problems, when the different methods enable more facets of the program to be studied.
- Increased potential for conflict removal, when the different methods offer findings that conflict or disagree and therefore must be reconciled through further analytic questioning, probing, and challenging.
- Increased value consciousness and diversity because different methods advance different values and interests.

The disadvantages of triangulation are that it is time consuming and expensive.

In the next section, it is shown how aspects of both qualitative and quantitative research methodologies are integrated into one research design to carry out this study.

4.3 Chosen Research Design

The discussion on research design in the previous section concludes that qualitative and quantitative research methodologies are interconnected and, in fact, they compliment each other. Moreover, there is not a single, standard method for carrying out research, and each methodology and associated methods have advantages as well as disadvantages. Choosing appropriate research design and data collection method depends on the availability of resources and the extent to which the relevant data can be collected (Peterson, 1982). Because the research problem of this study involved identification and description of variables and investigation of their cause and effect relationship, a combination of qualitative and quantitative research methodologies is used.

The qualitative methods used in this study included literature review, model development, questionnaire development and pilot study. An extensive literature review was conducted to identify and describe the variables (constructs) that act as antecedents to motivation and performance of people in the workplace. These variables were discussed in detail and some research hypotheses and conceptual framework were developed. The questionnaire items were developed based on the review of the literature and consultation of academics and practitioners in the fields of management and organisational behaviour. The questionnaire items were further refined using a pilot study.

Since the main objective of this study is to investigate causal relationships between the variables that act as antecedents to motivation and performance, human motivation, human performance, and organisational performance, quantitative analysis is required. The quantitative method used in this study was the use of a structured questionnaire as a data collection method. The structural equation modelling (SEM) approach was used to investigate the causal relationships between the variables.

The research methodology of this study involved the following major steps:

1. Literature review on the three fields of total quality management (TQM), human performance technology (HPT) and work motivation.
2. Development of hypotheses and conceptual framework based on literature review and synthesis of theories and frameworks.
3. Development of a structured questionnaire
4. Data collection.
5. Data analysis.

The phases of research are designed as shown in figure 4.1. The following subsections explain the research process in detail.

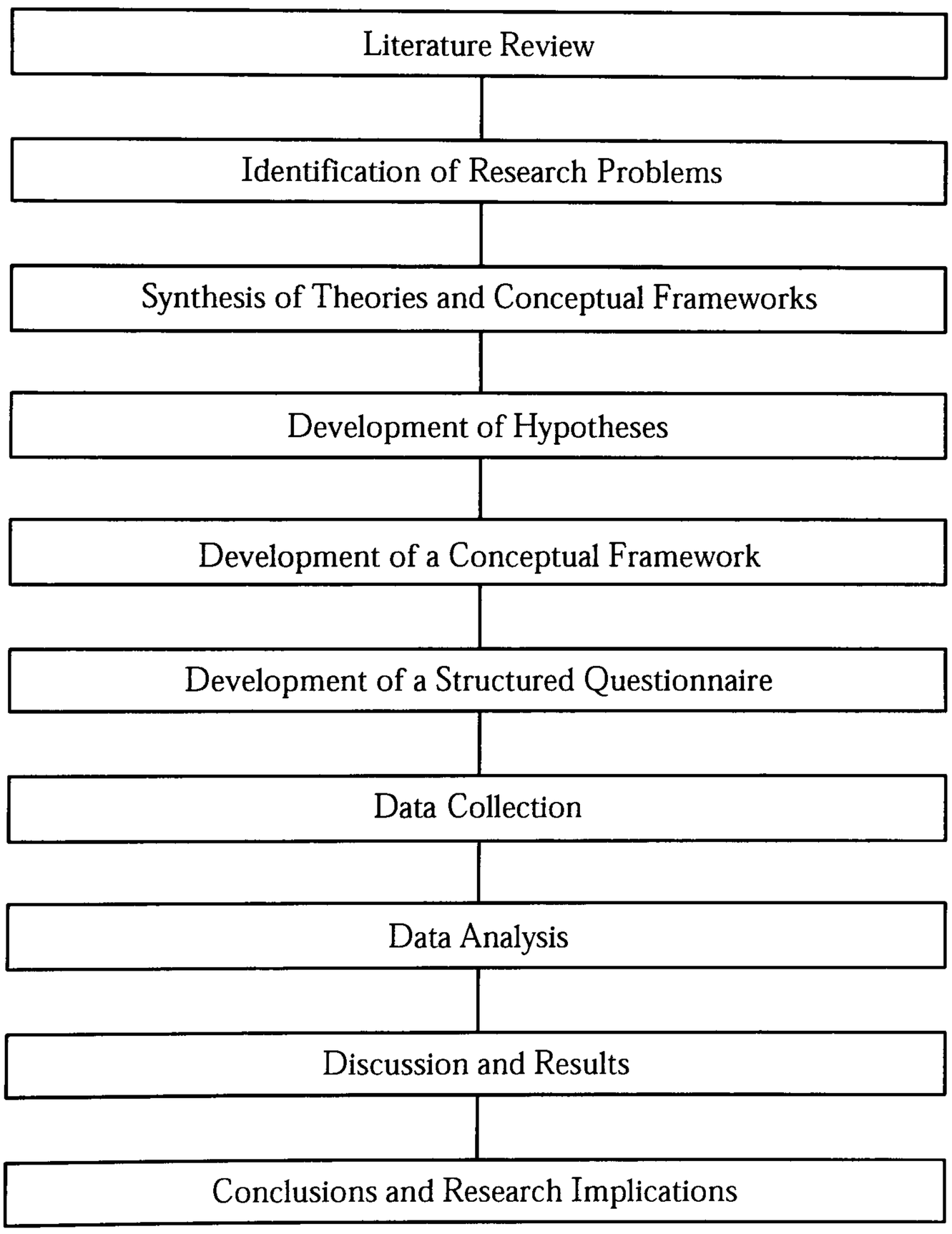

Figure 4.1 The Research Process

4.3.1 Literature Review

A comprehensive literature review of total quality management (TQM), human performance technology (HPT), and work motivation was conducted in detail. The views of the pioneers and gurus in each of these fields were discussed in detail. Also, recent thoughts of some writers in the three fields were presented and discussed. Gaps within each of these approaches were identified through a critique of extant literature. Several key factors affecting employee's motivation and performance, and organisational performance were identified based on the early and recent thoughts and works of the writers in three fields. The literature review aims to lay a strong theoretical foundation for the study and for development of a conceptual framework of motivation and performance.

4.3.2 Development of Hypotheses and Conceptual Model

The identified key factors that influence employee's motivation and performance and organisational performance were re-conceptualised and grouped into eight factors: work environment, financial benefits, non-financial benefits, clarity of processes, resources, relations with manager, leadership of top management, and external perception and identity. These eight factors were grouped into a main factor named "Motivation and Performance Antecedents". Based on theoretical background, these factors were hypothesised to positively influence employee's motivation, individual performance, and organisational performance. Eight hypotheses were developed to test the relationships among the five variables Motivation and Performance Antecedents, Motivation, Capacity to Perform, Individual Performance, and Organisational Performance. These hypotheses are summarised in section 3.8. The eight hypotheses were translated into a conceptual model for testing using structural equation modelling (SEM) approach.

4.3.3 The Measurement Instrument

In order to test the conceptual framework developed by the study and pertinent hypotheses, data need to be collected and analysed. The study utilised the structured questionnaire as the data collection method.

The nature of the research problem necessitated the use of a structured questionnaire for a number of reasons, which include:

1. The research questions, research objectives, and hypotheses require quantitative measurement of the variables to facilitate statistical inferences from the hypotheses.
2. The study requires data on certain personal characteristics and traits such as knowledge and skills, personality match, …etc.
3. The study requires data about peers and superior, which may be deemed sensitive.
4. The amount of data needed to test the proposed hypotheses and conceptual model is relatively huge, and hence is better collected using a questionnaire.

Other data collection methods that require communicating directly with the respondents, such as interviews, were ruled out because they were seen to be as causing possible embarrassment and could give rise to the Hawthorn effect. Moreover, timing and staffing is another constraint when using such methods.

4.3.4 Development of the Questionnaire

Based on the literature review conducted in chapter 2, 12 main constructs were synthesised (eight independent constructs and four dependent constructs). Based on theoretical background and empirical findings presented in chapter 3, these

constructs were specified and defined. The domain of each construct was defined as including a number of dimensions. Two methods were employed in the attempt to develop items for each dimension. First, organisational behaviour academicians were consulted in order to identify appropriate scale items. Second, the extant literature on TQM, HPT and motivation was reviewed, and it served as a primary source of information regarding the selection and phrasing of relevant items. The consultation with academicians and review of the literature suggested several existing scales as a starting point in the development of the items for dimensions of each construct (see table 4.5). Using these sources, a pool of 183 items was generated in an attempt to represent the dimensions of the 12 constructs. Those items were converted into a seven-point Likert scale with the following response categories: (1) strongly disagree, (2) disagree, (3) slightly disagree, (4) neither disagree nor agree, (5) slightly agree, (6) agree, and (7) strongly agree. The items were reviewed by some academicians and also presented to 22 employees at different levels and from different departments at Bahrain Training Institute as a pilot study. The review by academics led to the removal of redundant and/or unclear items. The pilot study helped in examining the items for problems in wording, phrasing, and understandability. Based on the results of the review by academicians and the pilot study, the initial item pool was reduced to 120 items.

The structured questionnaire consists of three main parts. The first part aims to obtain information about demographics of the respondents. Questions in this part focus on gender, nationality, age, education level, company type, job title, and years of experience.

The second part of the questionnaire attempts to measure the 12 main constructs developed for the study. The 12 main constructs represent eight independent factors and four dependent factors. The eight independent factors are: Work

Environment, Relations with Manager, Leadership of Top Management, Resources, Clarity of Processes, Financial Benefits, Non-financial Benefits, and External Perception and Identity. These eight factors are seen to act as antecedents to motivation and performance, and therefore are conceptualised into one major construct named "Motivation and Performance Antecedents". The four dependent constructs are: Motivation, Capacity to Perform, Individual Performance, and Organisational Performance.

The third part of the questionnaire measures some critical performance factors as perceived by the respondents. It consists of 35 factors that may influence employees' performance in the workplace. Perceptions of respondents regarding the importance of each factor in driving employees' performance were measured using a seven-point scale (being 1 = less important and 7 = very important). It was concluded in the analysis stage of the study that data generated from this part of the questionnaire are not required to test the developed hypotheses and conceptual framework. Appendix E contains the full questionnaire.

Table 4.5 Scales Utilised for Construct Development

No.	Construct	Dimensions	Scale/Measure/Model Utilised	Source
1	Work Environment	• Person-organisation fit, • Relationship with colleagues & teamwork • Communication • Working conditions	Work Environment Scale (WES)	(Moos, 1986)
			Person-organisation scale	(Netemeyer *et al.*, 1997)
			Teamwork Scale	(Mark *et al.*, 1999)
			Organisational Communication Scale	(House and Rizzo, 1972)
			Work group climate	(Burke and Litwin, 1992)
2	Relations with Manager	• Trust • Coaching • Empowerment • Feedback	Conditions of Trust Inventory Scale	(Butler, 1991)
			Job Characteristics Inventory (JCI)	(Sims *et al.*, 1976)
			Management practices	(Burke and Litwin, 1992)
			Empowerment scale	(Brian *et al.*, 2001)
3	Leadership of Top Management	• Involvement in decision-making • Organisational orientation • Strategic planning	External environment measure	(Burke and Litwin, 1992)
			Strategy Scale	(Richard and Marilyn, 2002)
			Mission and strategy measure	(Burke and Litwin, 1992)
			Participation in Decision Making Scale	(White and Ruh, 1973)
			Leadership measure	(Burke and Litwin, 1992)
			Organisational Scan Model	(Tosti and Jackson, 1996)

4	Resources	• Physical resources • Human resources	Gilbert's PROBE Model	(Gilbert, 1978)
			Behaviour Engineering Model	(Gilbert, 1978)
			Organisational Scan Model	(Tosti and Jackson, 1996)
5	Clarity of Processes	• Sufficiency of systems and standards • Clarity of systems and standards	Gilbert's PROBE Model	(Gilbert, 1978)
			Organisational Scan Model	(Tosti and Jackson, 1996)
			Systems measure	(Burke and Litwin, 1992)
			Job Diagnostic Survey	(Hackman and Oldham, 1976).
6	Financial Benefits	• Wages • Monetary incentives	Behaviour Engineering Model	(Gilbert, 1978)
			Incentives scale	(Spreitzer and Mishra, 1999)
7	Non-financial Benefits	• Job security • Health services • Training and development opportunity • Recognition	Individual needs and values measure	(Burke and Litwin, 1992)
			Behaviour Engineering Model	Gilbert, 1978)
			Organisational Scan Model	(Tosti and Jackson, 1996)
8	External Perception and Identity	• Corporate identity • External prestige • Corporate social responsibility	Organisational Scan Model	(Tosti and Jackson, 1996)
			Corporate identity construct	(Melewar and Jenkins, 2002)
			Corporate Social Responsibility scale	(Aupperele, 1984)
			Organisational Identity Scale	(Lehr and Rice, 2002)
9	Employee Motivation	• Activation of efforts • Direction of efforts • Maintenance of efforts	Motivation measure	(Burke and Litwin, 1992)
10	Capacity to Perform	• Self-efficacy • Cognitive ability • Knowledge and skills	Task requirement and individual skills	(Burke and Litwin, 1992)
			Gilbert's PROBE Model	(Gilbert, 1978)
			Behaviour Engineering Model	(Gilbert, 1978)
			Empowerment scale	(Brian *et al.*, 2001)
11	Individual Performance	• Individual accomplishments • Job commitment	Job performance measure	(Mahoney *et al.*, 1965)
			Organisational Commitment Questionnaire (OCQ)	(Mowday *et al.*, 1997)
12	Organisational Performance	• Organisational goals achievement • Level of business results	Organisational Performance Measure	(Richard and Marilyn, 2002)

The 12 constructs (developed in chapter 3), their conceptualisations and their items are presented below.

4.3.4.1 The Work Environment Construct

An effective work environment is characterised by this study in terms of person-organisation fit (Sims and Keon, 1997), relations with colleagues and teamwork (Holmstrom 1982; Dean and Bowen, 1994), satisfaction with working conditions (Herzberg *et al.*, 1959; Anderson, 1984; Blegen, 1993), and open communication (Morrow, 1997). The following items are developed to measure respondents' perception of the extent to which they are satisfied with their work environment:

Table 4.6 Items for the Work Environment Construct

Sub Dimension	Item No. in Questionnaire	Item Wording
Person-organisation fit	B18	My organisation's vision, mission, goals, and orientation are in accordance with my personality type.
	B19	My job and working conditions match with my preferences.
	B72	My job fits well with my abilities.
	B73	In my department, employees are placed in positions that match with their ability.
Relations with colleagues & teamwork	B21	My organisation arranges sufficient socialisation events.
	B22	I like to participate with my colleagues in the social events they attend.
	B23	I socialise with my colleagues inside our organisation.
	B24	I socialise with my colleagues outside our organisation.
	B32	I have good relationships with my colleagues.
	B35	I have a good trust relationship with my colleagues.
	B49	In general, I have a great deal of say or influence on what goes on in my work group.
	B51	In my department, my colleagues and I cooperate to get the job done.
	B52	I really feel that I belong to a team.
	B90	I communicate easily and freely with my colleagues.
Working Conditions	B44	My work environment is free from too many interferences and disruptions.
	B45	My work environment is clean and helps people to perform.
	B46	My work conditions are comfortable.
	B47	My workload is very high and above the normal limit.
	B53	I feel highly satisfied with my work environment.
	B54	Overall, I am highly satisfied with my organisation.
	B80	The causes of performance problems in my department are identified and eliminated.
Communication	B77	In my department, the processes and functions are well integrated with each other.
	B78	The coordination between my department and other departments makes it easy to receive the correct information and the necessary things that I require to do my job.
	B84	The correct information that I require to do my job properly is available to me.
	B85	The availability of the correct information on time makes it easy for me to communicate with others and do my job better and quicker.

4.3.4.2 The Relations with Manager Construct

Effective superior-subordinate relations is characterised by this study in terms of trust relationship between superior and subordinates (Rotter 1967; Hosmer, 1994; Hummels and Roosendaal, 2001), superior's ability to coach, guide, and counsel his/her subordinates (Deming, 1986; Juran, 1989; Beer and Walton, 1987; Sandell, 1979), superior's empowerment to his/her subordinates (Oakland, 1995), and superior's feedback to his/her subordinates (Tosti, 1986; Harless, 1990). The following items are developed to measure respondents' perception of the extent to which they are having effective relations with their managers:

Table 4.7 Items for the Relations with Manager Construct

Sub Dimension	Item No. in Questionnaire	Item Wording
Trust	B27	My manager communicates with me openly and freely.
	B28	I feel free to say what I think when communicating with my manager.
	B48	My manager is open and listens to my ideas and suggestions.
	B29	My manager is generally available when he or she is needed.
	B30	My manager is seen in the department very frequently.
	B31	I have a good relationship with my manager.
	B33	My manager uses lot of face-to-face contact.
	B34	My manager responds positively to my concerns.
	B36	I have a good trust relationship with my manager.
Coaching	B15	My manager and I have a full understanding and agreement of what job outcomes and objectives I should achieve in my work.
	B16	My manager and I have a full understanding of the consequences of achieving the agreed job outcomes and objectives in my work.
	B58	My manager possesses good leadership skills.
	B59	My manager treats me fairly.
	B60	My manager discusses with me the main goals and objectives of the organisation.
	B61	Normally, my manager guides me to do my job in a better way.
	B62	Normally, my manager helps in removing the obstacles and barriers that I face in my work.
	B63	My manager perceives that my work is meaningful and important.
Empowerment	B74	My manager delegates to me all the tasks related to my job.
	B75	My manager gives me the authority to decide on how to do my job.
Feedback	B81	My manager measures the job outcomes that I produce.
	B82	My manager compares the actual job outcomes that I produce with the established standards.
	B86	My manager discusses with me the results of my work and provides me with clear and timely feedback.
	B87	My manager evaluates my performance at work frequently.
	B88	My manager evaluates my performance at work annually.
	B89	My manager helps me in improving my performance so that my actual job outcomes match with the established standards.
	B91	I communicate easily and freely with my manager.

	B100	My manager identifies with me the training and staff development opportunities that I require for my work.

4.3.4.3 The Leadership of Top Management Construct

Leadership of top management is conceptualised here in terms of involving employees in the decision-making process (McGregor, 1960; Likert, 1967; Oakland, 1995), organisational orientation (Thomas *et al.*, 1991; Pelham, 2000), and strategic planning (Griffin, 2000; Robinson and Pearce, 1988). The following items are developed to measure respondents' perception of the extent to which they are satisfied with their top management:

Table 4.8 Items for the Leadership of Top Management Construct

Sub Dimension	Item No. in Questionnaire	Item Wording
Involvement in decision-making	B50	In general, the top management involves me in the decision making process.
Organisational orientation	B55	The long-term goals and objectives of my organisation fit and match with the requirements of the external environment and industry.
	B56	My organisation maintains its competitive advantages and tries all the time to be better than its competitors in the market.
	B57	My organisation proactively analyses and manages the external environment.
	B64	My organisation's top management has a clear vision of the future.
	B65	My organisation's top management has made changes that are positive for the organisation.
	B66	My organisation's top management proactively responds to important internal issues.
	B67	Top management of my organisation possesses good leadership skills.
	B68	Top management of my organisation contributes a lot and pays a great deal of attention to the main goals and objectives of the organisation.
Strategic planning	B69	My organisation has a written strategic plan to achieve the long-term goals for the next 2 years.
	B70	My organisation identifies in its strategic plans the necessary activities, resources, cost, time, staff support, … etc. that are required to achieve long-term goals and objectives of the organisation.
	B71	My department has written plans to achieve the short-term goals for the current year.
	B83	I know and understand the long-term goals and objectives of my organisation.

4.3.4.4 The Resources Construct

Resources are characterised by this study in terms of the assets and capabilities an organisation controls or seeks to control, and it covers both physical and human resources. They include tools and materials, information technology, and sufficient expertise personnel (Gilbert, 1978; Chrisman *et al.*, 1998; Barney, 1991; Grant, 1991). The following items are developed to measure respondents' perception of the extent to which they are satisfied with resources in their workplace:

Table 4.9 Items for the Resources Construct

Sub Dimension	Item No. in Questionnaire	Item Wording
Physical resources	B92	The necessary equipment, tools, and materials that I need to do my job are available to me.
	B93	We have the most modern equipment and tools to do the jobs in our department.
Human resources	B94	In my department, there is a sufficient number of skillful people to do the job.
	B95	In my department, people possess the necessary skills to the job.
	B96	In my department, people have highly specialised skills that are valuable to the organisation.

4.3.4.5 The Clarity of Processes Construct

Clarity of processes is operationalised here as the extent to which employees perceive standards, systems, processes and procedures in their workplace to be clear. Clarity of processes is characterised in terms of sufficiency of systems and standards and clarity of systems and standards (Shrock and Geis, 1999; Eyres, 1999; Spitzer, 1999; Gilbert, 1978). The following items are developed to measure respondents' perception of the extent to which their organisation has sufficient and clear systems, standards, and procedures:

Table 4.10 Items for the Clarity of Processes Construct

Sub Dimension	Item No. in Questionnaire	Item Wording
Sufficiency of systems and standards	B79	In my organisation, business processes are controlled by using appropriate control procedures, systems, and standards.

	B97	Policies, procedures and rules and regulations regarding my job are sufficient.
Clarity of systems and standards	B98	The existing policies, procedures and rules and regulations are clear to me and easy to follow.
	B99	The existing work processes and procedures are designed in a way that leads to achieving my job outcomes and objectives.

4.3.4.6 The Financial Benefits Construct

Financial benefits are conceptualised by this study in terms of performance-based wages and monetary incentives (Waldman, 1994; Griffin, 2000; Thiagarajan *et al.*, 1999; Lawler, 1987; Beer, 1993; Antonioni, 1994; Cumming, 1994). The following items are developed to measure respondents' perception of the extent to which their organisation provides financial benefits:

Table 4.11 Items for the Financial Benefits Construct

Sub Dimension	Item No. in Questionnaire	Item Wording
Wages	B37	I am paid enough to do my job.
Monetary incentives	B102	My organisation uses financial incentives to improve productivity.
	B103	There are clear policies for paying salaries, raises and bonuses.
	B104	My organisation pays me fairly compared to other employees.
	B105	My annual pay raise is based on my overall performance during the year.
	B119	My organisation pays salaries that are comparable to other organisations in this sector.

4.3.4.7 The Non-financial Benefits Construct

Non-financial benefits are conceptualised by this study in terms of job security, health services, training and career development opportunities, and appreciation (Thiagarajan *et al.*, 1999; Waldman, 1994; Gilbert, 1978; Herzberg *et al.*, 1959; Maslow, 1954). The following items are developed to measure respondents' perception of the extent to which their organisation provides non-financial benefits:

Table 4.12 Items for the Non-financial Benefits Construct

Sub Dimension	Item No. in Questionnaire	Item Wording
Job Security	B38	I feel my job is secure.
Health services	B40	My organisation provides excellent health care services to its employees.
Training and development opportunity	B41	I am highly satisfied with my career development opportunities in my organisation.
	B42	I am satisfied with the level of clarity for my career advancement in my company.
	B43	I am satisfied with the promotion(s) I have received in my organisation.
	B101	Since I joined my organisation, I have been given the training and development opportunities that I needed to do my job.
Recognition	B106	My organisation provides non-financial incentives (e.g., recognition, involvement, empowerment, authority; time off, … etc) based on employees' performance.
	B107	My organisation punishes employees who achieve poor results.
	B120	My organisation provides sufficient benefits compared to other organisations.

4.3.4.8 The External Perception and Identity Construct

External perception and identity refers to the extent to which employees identify with their organisation as a result of perceiving that the organisation they belong to is one that is valued by customers and the society. External perception and identity is conceptualised here in terms of corporate identity (van Rekom, 1997; Olins, 1995; Markwick and Fill, 1997; Blauw, 1995; Abratt, 1989; Balmer and Wilkinson, 1991; Balmer, 1995; Hatch and Schultz, 1997; van Riel and Balmer, 1997), external prestige (Balmer and Stotvig, 1997; Smidts *et al.*, 2001; Mael and Ashforth, 1992; Bhattacharya *et al.*, 1995; Fisher and Wakefield, 1998; Pratt, 1998), and corporate social responsibility (Friedman, 1970; Schick *et al.*, 1985; Kaufman *et al.*, 1997; Carroll, 1991; Mohr *et al.*, 2001). The following items are developed to measure respondents' perception of the extent to which they identify with their organisation as a result of external factors:

Table 4.13 Items for the External Perception and Identity Construct

Sub Dimension	Item No. in Questionnaire	Item Wording
Corporate identity	B108	My organisation's products/services are better than those of competitors.
	B109	There are many customers who are loyal to my organisation's products/services.
	B110	The perception of outside people about my organisation product/service makes me satisfied.
	B113	External people (customers, local organisations, …etc.) hold a positive image about my organisation.
	B114	The positive image held by external people about my organisation makes me feel more satisfied to work here.
	B115	I experience a strong sense of belonging to my organisation.
	B116	I feel proud to work for this organisation.
External prestige	B117	My organisation has a good reputation.
	B118	External people see my organisation as a prestigious organisation to work for.
Corporate social responsibility	B111	My organisation cares about the society.
	B112	Outside people prefer to deal more with my organisation than other organisations.

4.3.4.9 The Motivation Construct

Employee motivation is described by the study in terms of activation, direction, and maintenance of behaviour (Kast and Rosenzweig, 1985; Ambrose and Kulik, 1999; Blau, 1993). It is concerned with what drives individuals to achieve some goals in order to satisfy some needs or expectations (Kast and Rosenzweig, 1985). The following items are developed to measure respondents' perception of their own motivation in the workplace:

Table 4.14 Items for the Motivation Construct

Sub Dimension	Item No. in Questionnaire	Item Wording
Activation of efforts	B1	Overall, I am highly energised to put in extra effort at my work.
Direction of efforts	B2	Overall, my efforts at my work are highly directed towards the organisational goals.
Maintenance of efforts	B3	Overall, I have the willingness to maintain my efforts to reach organisational goals.
Overall Motivation	B4	Overall, I am highly motivated at my work.

4.3.4.10 The Capacity to Perform Construct

Capacity to perform refers to the employee's capacity or potential capacity to complete a specific task successfully. Employee capacity to perform is characterised by the study in terms of his/her self-efficacy (Bandura, 1997; Gist and Mitchell, 1992; Sadri and Robertson, 1993), cognitive ability (Hunter and Hunter, 1984; Ree *et al.*, 1994; Schmitt *et al.*, 1997; Bobko *et al.*, 1999), and knowledge and skills (Deming, 1986; Juran, 1989; Hunter, 1986). The following items are developed to measure respondents' perception of the extent of having a good capacity to perform their job:

Table 4.15 Items for the Capacity to Perform Construct

Sub Dimension	Item No. in Questionnaire	Item Wording
Self-efficacy	B9	I have a sufficient level of confidence that allows me to do my job properly.
	B10	I feel confident about my ability to improve my knowledge and skills to meet with new requirements related to my job.
	B11	I appreciate it when my manager is able to provide me with feedback about how to improve my knowledge and skills in the job.
	B39	I feel highly satisfied when I can prove my ability to perform a challenging task.
Cognitive ability	B12	Performing my job properly requires a high level of mental ability.
	B13	I find it very easy to comprehend (understand) how to do my job.
	B14	I can do my job independently, with very little help from others.
	B20	I adapt and change when there are changes in my organisation.
	B76	I do my job/tasks in an autonomous and free way.
Knowledge & skills	B17	I have got a sufficient level of knowledge and skills to enable me to do my job in an acceptable way.

4.3.4.11 The Individual Performance Construct

Individual performance is characterised here in terms of individual accomplishments (Rummler and Brache, 1995; Gilbert, 1978; Vroom, 1964; Locke, 1968) and job commitment (Vroom, 1964; Locke, 1968; Ajzen and Fishbein, 1975). The following items are developed to measure respondents' perception of their own individual performance in the workplace:

Table 4.16 Items for the Individual Performance Construct

Sub Dimension	Item No. in Questionnaire	Item Wording
Individual accomplishments	B5	The results I produce at my work are in accordance with the set and targeted standards.
	B6	My performance level is very high.
Job commitment	B25	I complete my job tasks within the deadline and in an acceptable manner.
	B26	I utilise my working hours effectively in doing activities related to my job.

4.3.4.12 The Organisational Performance Construct

Organisational performance is operationalised by this study in terms of achievement of organisational goals (Rummler and Brache, 1995; Tosti and Jackson, 1996) and level of business results (Baldrige National Quality Program, 2003; Reed *et al.*, 1996; Easton and Jarell, 1995; Lee, 2002). The following items are developed to measure respondents' perception of the performance of their organisation:

Table 4.17 Items for the Organisational Performance Construct

Sub Dimension	Item No. in Questionnaire	Item Wording
Organisational goals achievement	B7	Overall, my organisation achieves its goals and objectives.
Level of business results	B8	Overall, my organisation's performance is very high compared to similar organisations.

4.3.5 The Sample and Administration of the Questionnaire

It was decided to examine antecedents and consequences of motivation in an organisation in Bahrain as the researcher is from Bahrain, and Bahrain is trying to set up effective organisations that play a positive role in the national economy.

The Government policies in Bahrain have aimed to ensure stability in the labour market, encourage greater productivity, and make sure that Bahraini workers have the skills and education needed for today's economic environment. Therefore, the government has sought to provide training in wide areas of

specializations in order to ensure that local people have the skills and attitude employers seek. This is a big challenge for Bahrain. To meet this challenge a strong infrastructure for providing training is required in Bahrain. Bahrain Training Institute (BTI) represents the largest vocational training provider in Bahrain, which runs under the umbrella of the Ministry of Labour and Social Affairs (MOLSA). In order for BTI to meet this challenge, its workers (both training and support staff) must be highly motivated to work hard towards educating and training Bahraini job seekers and preparing them for the labour market.

Bahrain Training Institute (BTI) was chosen as the population for the current study. BTI was chosen for a number of reasons. First, its employees have a wide range of nationalities, and hence is considered to have a multicultural society environment. Second, it is a service organisation that focuses on graduating trainees that fit the labour market in Bahrain and hence plays an important role in the national economy of Bahrain. Third, it is a semi-government organisation, which has features of both private and public sectors. Fourth, the researcher works for BTI (the sponsor of the study) and the interest was to examine the influence of motivation and performance factors in the context of BTI. BTI has 343 employees.

BTI provides training to jobseekers as well as to employees of the public and private sectors. It provides training at different levels ranging from the craft certificate level (the lowest) to the higher national diploma – HND level (the highest). It also provides long and short training programmes for corporations. It provides training in a very wide range of specialisations, which include motor vehicle technology, mechanical engineering, chemical engineering, civil engineering, electric and electronics, computer and information technology, sales and marketing, office administration, and accounting. There are eight training

departments at BTI that run training programmes in these areas. These training departments are supported by other departments at BTI. The support departments at BTI include the registration, trainee affairs, corporate training and marketing, quality assurance, personnel, admin and finance, purchasing and maintenance and services departments.

To test the proposed hypotheses and conceptual model, questionnaires were distributed to all employees of BTI. Out of the 343 questionnaires the total number of responses received was 220. Three out of the 220 returned questionnaires were considered to be invalid because of too many missing values. The total number of valid responses was 217. This represents 63% of the population.

There was a cover letter attached with the questionnaire that was distributed to the respondents (see appendix D). The cover letter explained the nature and purpose of the study. The cover letter also covered the issues related to the voluntary and anonymous nature of the research process. The cover letter offered the respondents an executive summary of the results, if requested. Respondents were asked to return the questionnaire within ten days.

Approximately two weeks after the cover letter and questionnaire were distributed, a follow-up email was sent to the entire sample of 343. This email contained a thank you note for those who had returned the questionnaire and a reminder to those who did not return it. A second follow-up email (the same as the first one) was sent to the entire sample approximately two weeks after the first email.

The data of the 217 returned questionnaires were entered in Excel spread sheet after coding and were double checked as well. Values of the missing statements

were calculated by interpolating the average score of the other statements of the corresponding sub-dimension. After that, the data were transferred into an SPSS file for further analysis. Basic descriptive statistics about the questionnaires returned are presented in the following subsections.

4.3.5.1 Age and Gender Profile

As represented in Table 4.18 over one-third (36.0 %) of respondents were 30 or below. Approximately one third (32.7%) of the respondents were age groups of 31-40. The remaining respondents, approximately under one third (31.1%), were 41 or above.

Over two thirds (71.1%) of the respondents were males, however, there are more females than males in the age group 30 or below.

Table 4.18 Age and Gender profile

Age Group	Male	Female	Total
30 or below	34 (15.9%)	43 (20.1 %)	77 (36.0 %)
31 – 40	56 (26.2%)	14 (6.55%)	70 (32.7%)
41 or above	62 (30.0%)	5 (2.3 %)	67 (31.3%)
Total	152 (71.1%)	62 (29.9%)	214 (100%)

4.3.5.2 Job Profile

Respondents' job titles are presented in Table 4.19. The job titles of the respondents varied amongst 29 job titles. These 29 job titles are recoded and categorised into 4 main job titles for the purpose of producing reasonable statistics. The recoded job titles, as shown in Table 4.20, are: 1) top manager, 2) line manager, 3) trainer, and 4) administrator.

Table 4.19 Job Titles

No.	Job Title	Frequency	Percent (%)
1.	Deputy Director	1	0.5
2.	Assistant Director	5	2.3
3.	Senior Manager	4	1.8
4.	Head of Department	6	2.8
5.	Manager	6	2.8
6.	Head of Unit	2	0.9
7.	Assistant Head of Department	3	1.4
8.	Head of Section	10	4.6
9.	Senior Lecturer	17	7.8
10.	Lecturer	40	18.4
11.	Instructor	53	24.4
12.	Workshop Instructor	2	0.9
13.	Trainee Instructor	4	1.8
14.	Technician	27	12.4
15.	Administrator	1	0.5
16.	Senior Secretary	4	1.8
17.	Secretary	11	5.1
18.	Clerk	1	0.5
19.	Messenger	1	0.5
20.	Driver	1	0.5
21.	Telephone Operator	2	0.9
22.	Maintenance Supervisor	2	0.9
23.	Security Officer	2	0.9
24.	Labourer	2	0.9
25.	Carpenter	3	1.4
26.	Superintendent	1	0.5
27.	Student Advisor	1	0.5
28.	Assistant Accountant	2	0.9
29.	Executive Assistant	1	0.5
	Missing	2	0.9
	Total	217	100.0

Table 4.20 Recoded Categories of Job Titles and Service Years

No.	Job Title	Service Years				Total
		Less than 1 year	1-5 years	5-10 years	More than 10 years	
1.	Top Manager	--	1 (0.5%)	6 (2.8%)	3 (1.4 %)	10 (4.7%)
2.	Line Manager	--	8 (3.8%)	13 (6.1%)	6 (2.8%)	27 (12.7%)
3.	Trainer	19 (9.0%)	50 (23.6%)	36 (17.0%)	9 (4.2%)	114 (53.8%)
4.	Administrator	9 (4.2%)	19 (9.0%)	28 (13.2%)	5 (2.4%)	61 (28.8%)
Total		28 (13.2%)	78 (36.8%)	83 (39.2%)	23 (10.8%)	212 (100.0%)

All valid responses were entered into SPSS data file, and then subject to rigorous testing for normality (as discussed in section 4.4.1). These tests were conducted to ensure that the underlying assumptions required in the application of statistical and SEM analyses were not contravened.

4.3.6 Data Analysis

This study employed the structural equation modelling (SEM) approach to test the developed hypotheses and conceptual model. The confirmatory factor analysis (CFA) approach was used to analyse the constructs (measurement models) of the structural equation model. Both the Statistical Products and Service Solutions (SPSS) and AMOS 4.0 programmes have been used to analyse the data. The name AMOS is an acronym for "Analysis of Moment Structures" meaning the analysis of mean and covariance structures.

The purpose of the analysis using the SEM approach is to develop measurement models, so that it enables analysis of the whole structural equation model that consists of these measurement models. That is to ensure that the constructs used in the structural equation model are both valid and reliable. There are five measurement models in the structural equation model: Motivation and Performance Antecedents, Motivation, Capacity to Perform, Individual Performance, and Organisational Performance. Having arrived at well fitting measurement models, the SEM approach continues to test the hypothesised structural equation model and the proposed hypotheses. The hypotheses tested relate to causal links among the constructs Motivation and Performance Antecedents, Motivation, Capacity to Perform, Individual Performance, and Organisational Performance.

Section 4.4 explains in detail the SEM approach along with methodological issues concerning instrument validity, constructs' reliability, and model fit.

4.4 Structural Equation Modelling

Structural equation modelling (SEM) is a statistical methodology that takes a confirmatory (hypothesis-testing) approach to the analysis of causal relationships on multiple variables (Bentler, 1988). The term *structural equation modelling* expresses two important aspects of the methodology: (a) *structural equation* indicates that the causal relationships under study are represented by structural (regression) equations, and (b) *modelling* indicates that these structural equations can be modelled pictorially to clearly conceptualise the theory under study (Byrne, 2001). As such, a structural equation model is referred to as a hypothesised model, which can be tested statistically in a simultaneous analysis of the entire system of variables to determine to what extent the hypothesised model fits the sample data. If the hypothesised model is found to fit the sample data, then the causal relationships in the model are considered to be plausible. If, however, the goodness of fit is inadequate, the plausibility of these causal relationships is rejected (Byrne, 2001).

Structural equation modelling differs, in the determination of model fit, from other multivariable statistical approaches such as the analysis of variance (ANOVA), multiple regression, path analysis, discriminant analysis, and canonical analysis. First, SEM takes a confirmatory approach to the data analysis and hence makes it easier for hypothesis testing. While the other multivariable statistical approaches use only observed measures that are assumed to be measured without error (i.e., these approaches do not assess or correct for measurement error and consider it to be zero), SEM provides explicit estimates of these error variance parameters. Therefore, to avoid any inaccuracies due to sizable errors, the SEM approach can be used. Second, although other multivariable statistical approaches use only observed variables, SEM procedures can use both observed and unobserved variables. Unobserved variables, termed *latent variables* or *factors*, are measured indirectly using the observed variables that

operationalise the latent variables. This makes it easier for construct development using the SEM approach. Finally, the other multivariable statistical approaches have associated statistical tests with known distributions. Structural equation modelling, however, does not use a single goodness-of-fit criterion to assess model fit between the hypothesised model and the sample data. Generally, researchers recommend that various goodness-of-fit criteria be used in combination to assess model fit, model comparison, and model parsimony (Schumacker and Lomax, 1996; Byrne, 2001).

As mentioned above, SEM takes a confirmatory approach to data analyses rather than an exploratory approach. That is, the relationships between the observed variables and their underlying factors are postulated a priori based on knowledge of theory, empirical research, or both and then the hypothesised structure of these relationships is tested statistically. This approach of analysis is termed by SEM researchers as *Confirmatory Factor Analysis* (CFA). So, CFA focuses on the link between factors (latent variables) and their observed measures. The links from the factors to their observed measures are termed as *regression paths* or *factor loadings*. In any SEM framework, the representation that links a latent variable to its observed measures is referred to as a confirmatory-factor-analytic model *CFA model* or a *measurement model*. That is, the measurement model specifies the pattern by which each observed measure loads on a particular latent variable (factor). In contrast, the structure that links the latent variables with each other is referred to as a *structural equation model*. The structural equation model, therefore, specifies the manner by which the latent variables influence each other, both directly and indirectly (Byrne, 2001).

Structural equation models are schematically portrayed using basic configurations that are represented by geometric symbols – a circle (or ellipse), a square (or

rectangle), a single-headed arrow, and a double-headed arrow. These basic configurations, together with their brief description, are as follows (Byrne, 2001):

- Observed variables represented by squares (or rectangles)

- Unobserved Latent variables (factors) represented by circles (or ellipses).

- Measurement error associated with an observed variable and represented by a circle (or ellipse).

- Residual error corresponding to an error in the prediction of a latent variable from other latent variables and represented by a circle (or ellipse).

- Path coefficient for regression of an observed variable onto a latent variable (factor) and represented by a single-headed arrow.

- Path coefficient for regression of one factor onto another factor and represented by a single-headed arrow.

- Covariances or correlations between pairs of variables represented by double-headed arrows.

To illustrate the differences between the measurement model and the structural equation model and how the basic configurations of structural equation models are schematically represented, let us take the hypothetical example shown in figure 4.2. In reviewing the model shown in figure 4.2, it can be seen that there are two unobserved latent factors (motivation and individual performance) and five observed variables (M1, M2, M3, IP1, and IP2). The three observed variables M1, M2, and M3 are considered to measure motivation and the two observed

variables IP1 and IP2 to measure individual performance. The five observed variables (measures) act as indicators of their corresponding underlying latent factors. Associated with each of the five observed variables is a measurement error (err1 – err5). A residual error (resid1) represents error in the prediction of Individual Performance from Motivation.

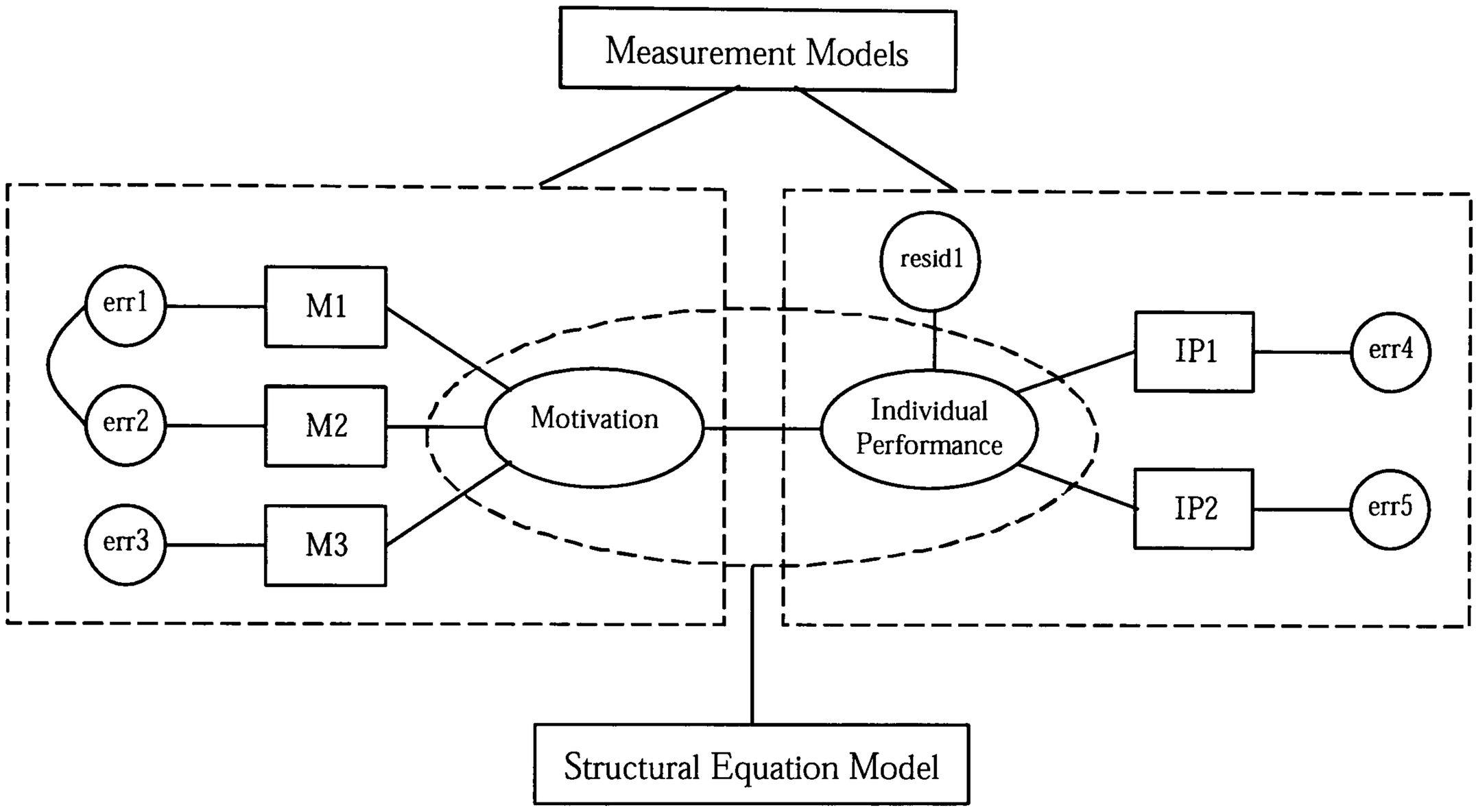

Figure 4.2 General Structural Equation Model Demarcated into Measurement and Structural Components

A necessary condition for model identification is that the degrees of freedom must be greater than zero. The degrees of freedom can be calculated by using the formula $(p(p+1)/2 - t)$ where p is the total number of observed measures, and t is the number of parameters to be estimated (that is the paths from latent to observed variables, residuals on observed variables, unidirectional and covariance paths, and residuals of structural model). To establish the scale for each latent variable in the model, one of the regression paths in each measurement model is fixed to be 1 (Hoyle, 1995, p. 39; Maruyama, 1998, p. 189; Byrne, 1998, pp. 29, 39, and 110; Raykov and Marcoulides, 2000, pp. 31-32).

The following subsections explore in detail the estimation method used to estimate the parameters of the hypothesised model and summarise the commonly used goodness-of-fit criteria.

4.4.1 Estimation Method

Using SEM approach, researchers try to fit a model to data. This is associated with solving equations and estimating parameters of the model. The fit of the model is explained by the fit equation: Data = Model + Error. SEM solves this equation by finding the best model that fits the data with minimum error. SEM usually assumes that the sample data follow a multivariate normal distribution, so that the means and covariance matrix contain all the information. Under this normality assumption, the Maximum Likelihood (ML) estimation is the most widely used method for estimation. It requires a reasonable sample size of around 200 observations (Hox and Bechger, 1998). Maximum likelihood is an approach that looks at a large class of distributions of the same data and then chooses the best distribution. For each distribution, the "likelihood" is computed, and the best distribution is the one that has maximum likelihood.

To check the normality assumption of the data under investigation, the skewness and kurtosis of the variables were examined. According to West *et al.* (1995), moderately non-normal data (skewness=2; kurtosis=7) indicate non-problematic data when the sample size is approximately 200 and the maximum likelihood estimation method may be used. The skewness and kurtosis of the data under investigation are shown in appendix F. It is noted that the majority of the variables that were used in the structural equation model has skewness<1 and kurtosis<2. Only two variables have kurtosis greater than 7 (9.833 for variable B2 and 9.177 for variable B10). The two variables have skewness of slightly more

than 2 (-2.544 for variable B2 and –2.310 for variable B10). Another three variables were marginal in terms of skewness (-2.0 78 for variable B1, -2.015 for variable B5, and –2.130 for variable B17). As can be seen from appendix F, the data are negatively skewed. Overall, the data can be considered to be moderately non-normal and therefore, the maximum likelihood estimation method can be used with the sample size of study (217) to estimate the parameters of the hypothesised model.

Non-normal data are normally caused by one or more extreme observations that are quite different from the rest of the data. These extreme values are known as "outliers" and they can have some impact on the covariance matrix (Schumacker and Lomax, 1996). Sometimes, it is not recommended to delete these observations from the sample data, as they may contain important information. To deal with outliers, some transformations may be applied to the original data in order to normalise the data and then analyse that transformed data. Some of these transformations are log X, square root of X, reciprocal of X (Schumacker and Lomax, 1996), and Box-Cox transformation (Swanson *et al.*, 2000). All these transformations were performed on the data under investigation and it was found that the best results were when the original data were used without any transformation. Therefore, the original data were used without any transformation and the maximum likelihood (ML) of estimation method was used to estimate the parameters of the hypothesised model.

4.4.2 Goodness-of-Fit-Criteria

Overall, fit indexes are categorised into three types of fit: model fit, model comparison, and model parsimony. Common fit indexes under each category will be discussed next in order to understand their interpretations and recommended applications.

4.4.2.1 Model Fit

Model fit statistics in SEM determine the degree to which a model fits the sample data based on the discrepancy between the unrestricted sample covariance matrix (original, S) and the restricted covariance matrix (reproduced, Σ). Model fit criteria, commonly used by researchers, are chi-square (χ^2), goodness-of-fit index (GFI), and adjusted goodness-of-fit index (AGFI).

The Chi-square (χ^2) value relative to the associated degrees of freedom indicates the extent to which the observed matrix (S) differs from the estimated matrix (Σ). It tests the extent to which the residuals in the matrix (Σ - S) are zero (Bollen, 1989). Researchers are interested in obtaining a nonsignificant χ^2 value that is less than the tabled value with associated degrees of freedom. The probability value (p) associated with χ^2 value indicates the likelihood of obtaining a χ^2 value that exceeds the χ^2 value under the assumption of no difference between S and Σ. That is, the higher the probability associated with χ^2, the closer is the fit between the hypothesised model (under the assumption $S=\Sigma$) and the perfect fit (Bollen 1989).

However, since the χ^2 test is very sensitive to sample size (it increases with the sample size) and it assumes a perfect fit between the hypothesised model and the sample data (Joreskog and Sorbom, 1993), researchers have developed other goodness-of-fit indexes in order to address the limitations of the χ^2 test. One of these fit statistics is the χ^2/df ratio, which normalises the χ^2 value in relation to the degrees of freedom (Wheaton *et al.*, 1977). Values of the χ^2/df ratio that are less than or equal to 2.00 represent a very good fit between the hypothesised model and the sample data.

Another fit statistic that is commonly used is the goodness-of-fit index (GFI). The GFI index measures the amount of variance and covariance in the observed matrix (S) that is explained by the estimated matrix (Σ). The adjusted goodness-of-fit index (AGFI) adjusts the GFI index for the degrees of freedom in a model relative to the number of variables. Values of GFI and AGFI close to 0.900 reflect a good model fit (Schumacker and Lomax, 1996; Byrne, 2001).

The root mean square residual (RMR) represents the average residual value obtained by calculating the square root of the mean squared differences between the corresponding matrix elements in S and Σ. It indicates how much the Σ matrix is close to the S matrix. Since the RMR value is based on the unstandardised residuals, it is difficult to be interpreted (Hu and Bentler, 1995; Byrne, 2001), and therefore it is recommended to use the standardised RMR value that is based on using standardised residuals. The standardised RMR ranges from zero to 1.00 where for a well-fitting model this value will be less than or equal to 0.050 (Byrne, 2001).

The root-mean-square error of approximation (RMSEA) represents the error of approximation in population. It measures how well would the model fit the population covariance matrix if it were available. RMSEA value of 0.060 or less indicates a good fit between the hypothesised model and the observed data (Hu and Bentler, 1999). Values as high as 0.080 represent reasonable errors in the population (Browne and Cudeck, 1993). The RMSEA value is sensitive to the degrees of freedom and, therefore, tends to be high for complex models (models with large number of estimated parameters) unless the sample size is large enough (Byrne, 2001).

4.4.2.2 Model Comparison

Comparative fit indexes compare the χ^2 value for the model tested to one from a null model (also called a "baseline" model or "independence" model). The null model is a model, which specifies that all measured variables are uncorrelated (there are no latent variables), and it should always have a very large χ^2 (poor fit). There are several comparative fit indexes used by different researchers. They include the Tucker-Lewis index (TLI), the Bentler-Bonett normed fit index (NFI), and the comparative fit index (CFI). Most of these fit indexes are calculated by using ratios of the model χ^2 and the null model χ^2 and dfs for the two models. Values of TLI, NFI, and CFI larger than 0.900, reflect a good model fit (Bentler, 1992).

4.4.2.3 Model Parsimony

Parsimony refers to the number of estimated parameters required to achieve a specific level of fit (Schumacker and Lomax, 1996). Parsimony fit indexes are relative fit indexes that are adjustments to most of the model fit indexes discussed above. The adjustments are meant to penalise models that are less parsimonious. Parsimony fit indexes tend to be low for more complex models. They include the parsimony goodness-of-fit index (PGFI; based on the GFI), the parsimony normed fit index (PNFI; based on the NFI), the parsimony comparative fit index (PCFI; based on the CFI), and the Akaike information criterion (AIC).

The parsimony goodness-of-fit index (PGFI) addresses the complexity (number of estimated parameters) of the hypothesised model while assessing the overall model fit (Byrne, 2001). Mulaik *et al.* (1989) developed a number of indexes that deal with parsimony. Although many researchers believe that parsimony adjustments are important, there is some debate about whether or not they are

appropriate. The researcher's perspective is that researchers should evaluate model fit independent of parsimony considerations, but evaluate alternative theories favouring parsimony. With that approach, we would not penalise models for having more parameters, but if simpler alternative models fit equally well, we might want to favour the simpler model.

To sum up, the fit indexes under each category of the three types of fit (model fit, model comparison, and model parsimony) and their recommended applications are summarised in table 4.21 below.

Table 4.21 Goodness-of-Fit Criteria and their Fit Interpretation

Goodness-of-Fit Criteria	Acceptable level	Interpretation	Reference
Model Fit			
Chi-square (χ^2)	≤ the tabled χ^2 value	Compares obtained χ^2 value with tabled value for given df.	(Bentler and Bonett, 1980)
Degrees of freedom (df)	Must be greater than zero	df=p(p+1)/2 – t	(Rigdon, 1994)
Normed Chi-square (NC=χ^2/df)	≤ 2.00	A normed χ^2 ratio relative to df.	(Carmines and McIver, 1981)
Probability value (p)	≥ 0.050	The likelihood that the χ^2 test indicates a fit hypothesised model.	(Bentler and Bonett, 1980)
Goodness-of-fit (GFI)	≥ 0.900	0 (no fit) to 1 (perfect fit); values close to 0.900 reflects a good model fit.	(Hu and Bentler, 1995)
Adjusted GFI (AGFI)	≥ 0.900	0 (no fit) to 1 (perfect fit); values close to 0.900 reflects a good model fit.	(Bryne, 2001)
Root-mean-square residual (RMR)	Level is defined by standardised RMR to be ≤ 0.050	Indicates the closeness of Σ to S matrix. The model explains the correlations to within an average error of the RMR value.	(Hu and Bentler, 1995)
Root-mean-square error of approximation (RMSEA)	≤ 0.060	Value less than 0.06 indicates a good model fit. 0.06 – 0.08 indicates reasonable error	(Browne and Cudeck, 1993)
Probability of close fit (PCLOSE)	≥ 0.050	The probability that the population RMSEA is not greater than 0.050. Value less than 0.05 indicates a close model fit	(Browne and Cudeck, 1993)
Model Comparison			
Tuckler-Lewis index (TLI)	≥ 0.900	0 (no fit) to 1 (perfect fit); values close to 0.900 reflects a good model fit.	(Bentler and Bonett, 1980)
Normed fit index (NFI)	≥ 0.900	0 (no fit) to 1 (perfect fit); values close to 0.900 reflects a good model fit.	(Bentler and Bonett, 1980)
Comparative fit index (CFI)	≥ 0.900	0 (no fit) to 1 (perfect fit); values close to 0.900 reflects a good model fit.	(Bentler, 1990)
Model Parsimony			
Parsimony goodness-of-fit	Maximum value	Compares values in alternative	(Mulaik *et al.*, 1989)

index (PGFI)		models.	
Parsimony comparative fit index (PCFI)	Maximum value	Compares values in alternative models.	(Arbuckle and Wothke, 1999)
Parsimony normed fit index (PNFI)	Maximum value	Compares values in alternative models.	(James *et al.*, 1982)

4.5 Reliability and Validity

4.5.1 Reliability

To ensure the reliability of the constructs in the measuring instrument, the measurement error approach is used in structural equation modelling. The measurement error describes the part of an observed measure that is not measured by the corresponding latent variable. Large measurement errors indicate one of three possibilities: unreliable observed measure, the observed measure is measuring some other construct, the observed measure is cross loading on more than one factor (Tan, 2001). Items with high measurement errors were deleted from the analysis to ensure reliability of the constructs (see chapter 5).

The reliability Cronbach's alpha coefficient (α) was calculated for each construct used in the final structural equation model. As shown in Table 4.22, the α values for all the constructs are above 0.65, which is regarded as an acceptable minimum level for further analysis (Nunnally; 1978). The only exception is the Individual Performance construct, which was found to be reliable using the CFA approach (see chapter 5 for analysis of all the constructs). The α values for all the constructs, along with the item to totals relationships (α value for each construct when a specific item from the construct is deleted) for each of these constructs are shown in appendix G.

Table 4.22 Cronbach Alpha Coefficients of Research Constructs

Construct	No. of Items	Cronbach alpha coefficient (α)
Organisational performance	**2**	**0.7553**
Individual performance	**2**	**0.5514**
Motivation	**3**	**0.6703**
Capacity to Perform	**4**	**0.6610**
Motivation and Performance Antecedents	**30**	**0.9429**
Work Environment	8	0.8103
Relations with Manager	6	0.9330
Leadership of Top Management	6	0.8959
Clarity of Processes	2	0.8355
Resources	2	0.8255
Financial Benefits	2	0.7368
External perception and identity	4	0.8943

4.5.2 Validity

To establish whether or not each item of the questionnaire represents a measurement of the corresponding latent constructs, as the literature suggests, the factor loading (regression weight) was used. The factor loading describes the relation between the observed measure and its latent variable as it indicates the ability of the observed measure to actually measure the corresponding latent variable. Therefore, the factor loading acts as a measure of validity (Tan, 2001). Items, which have got low regression weights, were deleted from the measurement models (see chapter 5). It is ensured that all items used in the structural equation model have considerable and significant regression weights.

Other types of validity that were attended to in this research were face validity and content validity (Cook and Campbell, 1979; Mitchell, 1985). Face validity aims to ensure that the research instrument has appropriate comprehension, format, and flow as seen by the respondent. The purpose of content validity is to examine whether the items in the questionnaire are appropriate and sufficient for measuring what they are supposed to measure. In other words, it is used to check if the instrument is appropriate and sufficient to examine the area under investigation. To attend to these issues, some competent colleagues, who are

considered to be familiar with the purpose of the survey, were selected and asked to review the instrument for comprehension, format, flow, appropriateness, and sufficiency. Also, another group of employees at different levels and from different departments were asked to fill in the questionnaire for the purpose of identifying items in the questionnaire that were considered to be confusing or difficult to understand. Initially the questionnaire contained 183 items. The questionnaire was sent to the two groups with a cover letter that explained the purpose of their participation (see appendix C). As a result of the comments from both groups, the questionnaire was modified and the number of items in the questionnaire reduced to 120 (see appendix E).

4.6 Summary

This chapter described the research methodology employed by the study. It first described and discussed, in general, quantitative and qualitative research methodologies and pertinent research issues involved in social science studies. It then described the methodology and methods employed in this study to select the population and sample, generate and validate the data collection instrument, and collect and analyse the data. Also, construct items were presented in this chapter. The construct items were used to collect data for each of the constructs through a questionnaire survey methodology. The structural equation modelling (SEM) approach, employed by this study, is described in this chapter. Some methodological issues concerning instrument validity, constructs' reliability, and model fit were also discussed. Pertinent descriptive statistics of the study were also described.

CHAPTER 5 ANALYSES OF THE MEASUREMENT MODELS

5.1 Introduction

Any structural equation model involves relations among latent variables, and the primary aim in working with a full structural model is to assess the extent to which these relations are valid. Since any structural equation model is composed of measurement models (discussed in chapter 4), it is very important to test first for the validity of the measurement models before making any attempt to evaluate the full structural equation model. Once the measurement models used in the structural model are found to be valid, findings related to the assessment of the hypothesised structural model are seen to be more reliable (Byrne, 2001, p. 145). If a structural equation model contains any unidentified parameter estimates, it should not be relied on (Raykov and Marcoulides, 2000, p. 30). This is why it is important to separate the measurement and structural models in order to ensure model identification (Maruyama, 1998, p. 191), and if each measurement model is identified independently, then the structural model is identified. This approach of first testing for the measurement models and then testing for the structural equation model is referred to as a "two-step modelling" approach (Schumacker and Lomax, 1996). Therefore, in this chapter analyses of the measurement models are presented. The confirmatory factor analysis (CFA) approach is used to analyse the measurement models using the AMOS 4.0 programme. The maximum likelihood estimation method (described in chapter 4) was used to run and analyse the measurement models. The concept of structural equation modelling (SEM) and CFA was fully explained in chapter 4.

The chapter will examine and test measurement models for the constructs specified in the hypothesised model, which was developed in chapter 3. These constructs are:

1. Motivation
2. Capacity to Perform
3. Individual Performance
4. Organisational Performance, and
5. Motivation and Performance Antecedents.

5.2 The Motivation Measurement Model

Our first confirmatory factor analysis (CFA) model to be analysed is the Motivation measurement model. This first-order CFA model hypothesises that the variable Motivation is a unidimensional construct composed of four items as presented schematically in figure 5.1. A more formal description of the hypothesised model can be presented. As such, it can be stated that the CFA model presented in figure 5.1 hypothesises a priori that:

1. Motivation can be explained by one latent variable.
2. There are four observed variables (Items B1, B2, B3, and B4) as indicated by the four rectangles shown in figure 5.1. They represent items of the Motivation Scale from the Questionnaire (see chapter 4).
3. Measurement error terms are uncorrelated.

The hypothesised model shown in figure 5.1 is labelled as Model 1. The following subsection shows the modification in specifications to be done in order to arrive to the final model that is considered to be a good fit for the data.

5.2.1 Assessment of the Motivation Measurement Model

At the beginning, the Motivation measurement model was evaluated using the four observed items as shown in figure 5.1. The model was assessed in a way to make sure that parameter estimates exhibit the correct sign and size and that the construct items are consistent with the underlying theory (Byrne, 1988, p. 104). In reviewing the goodness-of-fit statistics presented in table 5.1 and figure 5.1 (extracted from AMOS table H.1 in appendix H), the estimation of Model 1 yielded an overall chi-square value ($\chi^2_{(2)}$) of 16.216 (with a χ^2/df ratio of 8.108), a GFI of 0.966, a CFI of 0.918, and an RMSEA of 0. 181. The meaning of these goodness-of-fit statistics was fully explained in chapter 4. Although the GFI (0.966) suggests that the model is well fitting and the CFI (0.918) suggests that it is adequate, the χ^2/df ratio (8.108>2.00) and the RMSEA value (0.181>0.06) indicate a very poor fit of the model to the data. Therefore, it is clear that some modification in specification is needed in order to determine a model that better represents the sample data. To do such modification, we need to pinpoint possible areas of misfit.

The modification indexes (MIs) presented in table H.2 (see appendix H) show low values of MIs that are also relatively close to each other. Examining the 4 items of the Motivation scale shows that Item B4 differs from the other three Items B1, B2, and B3 in the sense that these three items measure motivation attributes in terms of energy to put extra efforts (B1), efforts being directed towards organisational goals (B2), and having the willingness to maintain these efforts (B3), while Item B4 is a direct wording question that tries to measure motivation at work. In the interest of maintaining the conceptualisation of the Motivation variable that has support from the literature, Item B4 was cancelled from Model 1. By doing so, the degrees of freedom reduced to zero. To gain one more degree of freedom, one constraint needs to be imposed. It is found that among the different possibilities of imposing a constraint, the one

constraint that yielded the best results was when the variance values of the residual errors of Items B2 and B3 were set to be equal. Therefore, Model 1 was re-specified by cancelling Item B4 and constraining the residual errors of Items B2 and B3 to be equal; the re-specified model is labelled as Model 2 as shown in figure 5.2.

A review of the fit indexes for Model 2 presented in table 5.1 and figure 5.2 (extracted from AMOS table H.3 in appendix H), and a comparison of these values with those for Model 1 presented in table 5.1 and figure 5.1, reveal Model 2 to be the better fitting model against all different types of fit indexes. In particular, we note the improved GFI value of 1.000 (vs. 0.966), the improved CFI value of 1.000 (vs. 0.918), and the drop in RMSEA value (0.000 vs. 0.181).

To determine if the difference in fit between the models is statistically significant, we examine the difference in χ^2 ($\Delta\chi^2$) between the two models in relation to degrees of freedom equal to the difference in degrees of freedom (Δdf) between the two models. Comparison of Model 2 ($\chi^2_{(1)}$ =0.149) with Model 1 ($\chi^2_{(2)}$ =16.218) yields a difference in value of χ^2 of 16.069 ($\Delta\chi^2_{(1)}$ =16.069). This drop in χ^2 is greater than the table value of χ^2 distribution ($\chi^2_{(1)}$ =3.841 for p value of 0.05; taken from statistical texts), which indicates that the drop is statistically significant and therefore Model 2 is a better fitting model.

Finally, since all the fit indexes indicate substantial improvement in model fit, and in the interest of parsimony and conceptualisation of the Motivation scale, Model 2 is considered to represent the best fitting model of the Motivation scale and it will be used as the measurement model for subsequent analyses of the structural equation model in chapter 6.

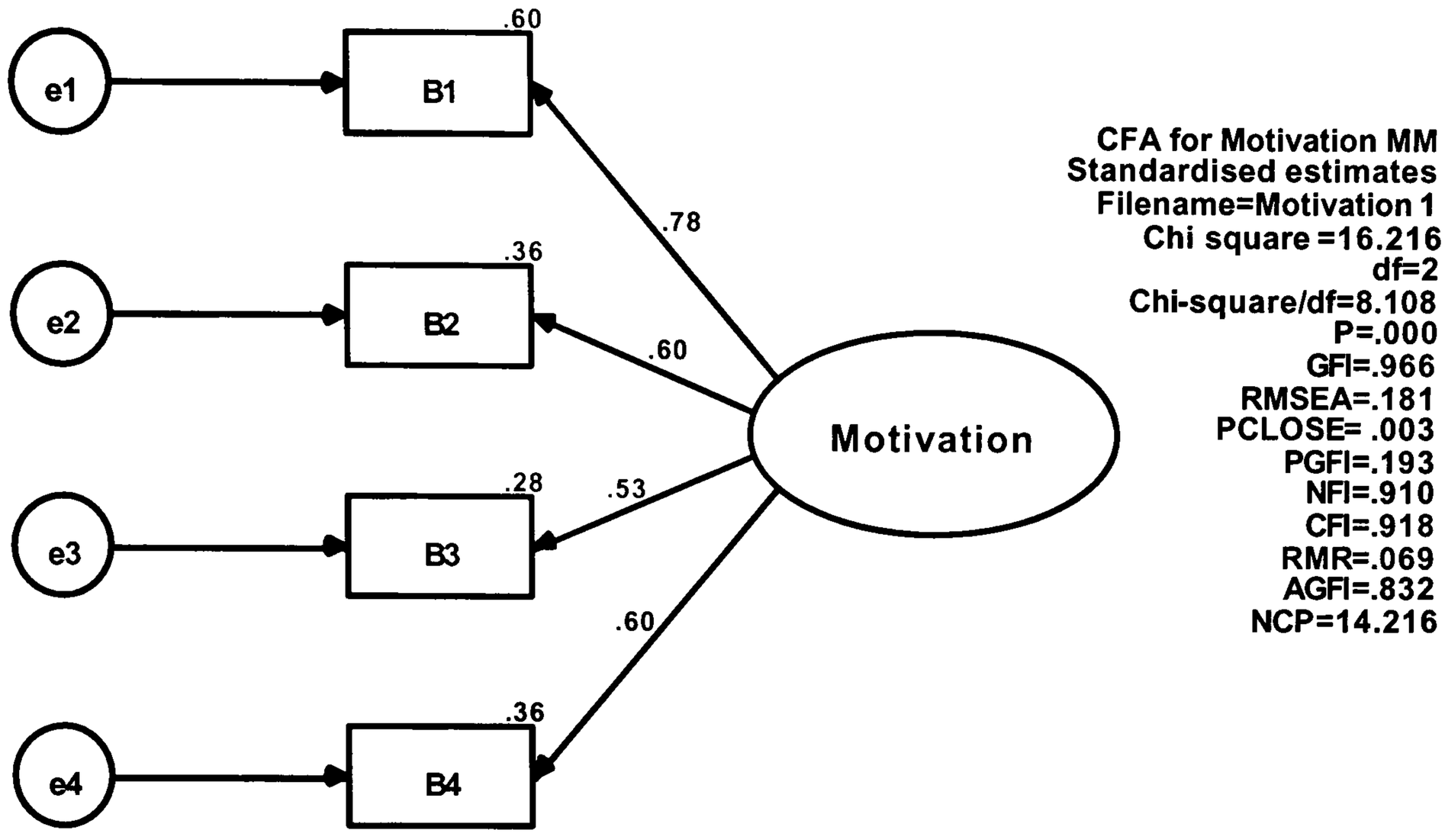

Figure 5.1 The Motivation Measurement Model (Model 1)

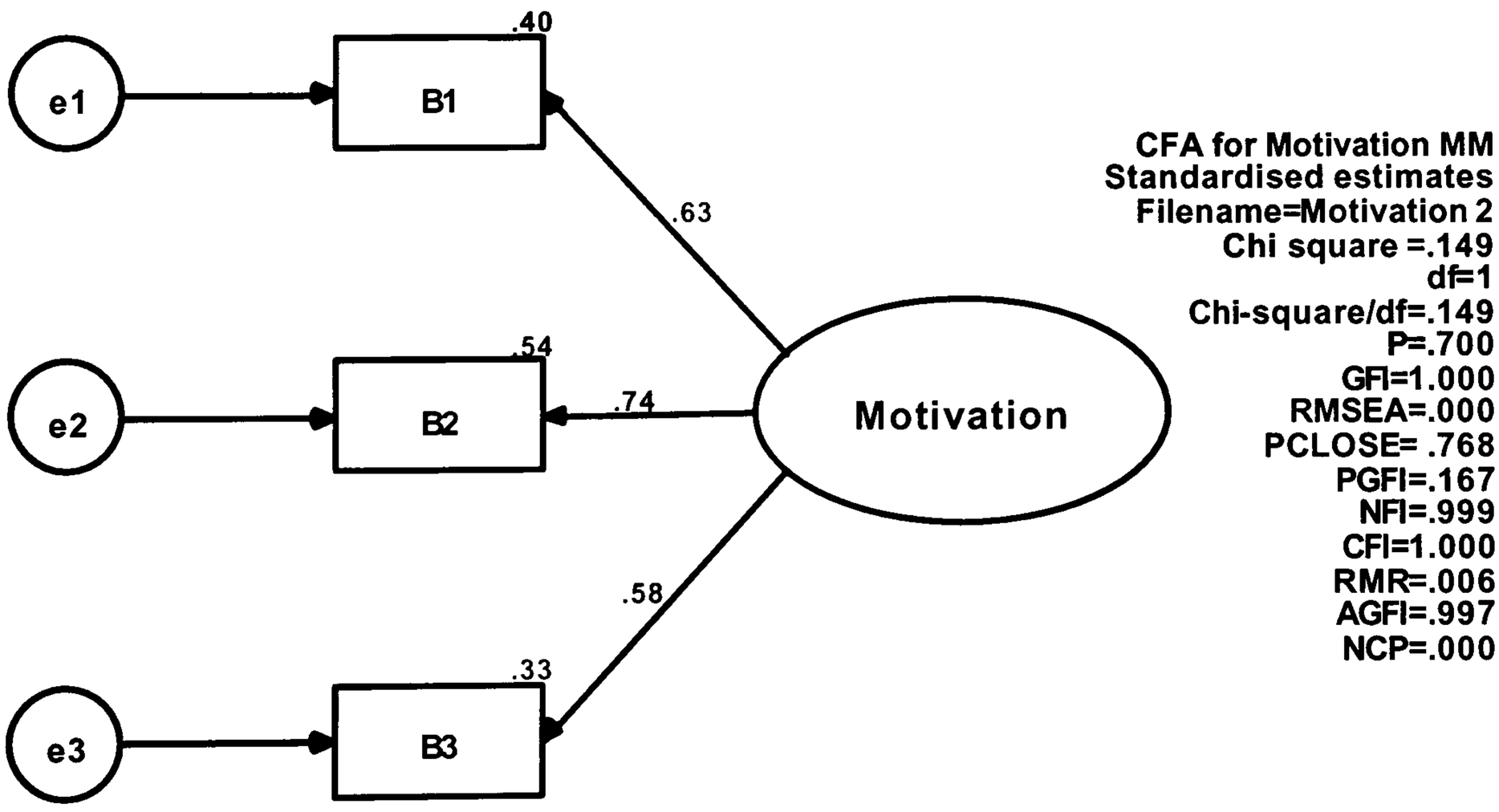

Figure 5.2 The Motivation Measurement Model (Model 2)

Table 5.1 Comparison of Goodness-of-Fit Indexes for the Motivation Measurement Models

Goodness-of-Fit Criteria	Index Value (Model 1)	Index Value (Model 2)
Model Fit		
Chi-square (χ^2)	16.216	0.149
Degrees of freedom (df)	2	1
Normed Chi-square (NC=χ^2/df)	8.108	0.149
Probability value (p)	0.000	0.700
Goodness-of-fit index (GFI)	0.966	1.000
Adjusted GFI (AGFI)	0.832	0.997
Root-mean-square residual (RMR)	0.069	0.006
Root-mean-square error of approximation (RMSEA)	0.181	0.000
Probability of close fit (PCLOSE)	0.003	0.768
Model Comparison		
Tuckler-Lewis index (TLI)	0.754	1.025
Normed fit index (NFI)	0.91	0.999
Comparative fit index (CFI)	0.918	1.000
Model Parsimony		
Parsimony goodness-of-fit index (PGFI)	0.193	0.167
Parsimony comparative fit index (PCFI)	0.306	0.333
Parsimony normed fit index (PNFI)	0.303	0.333

5.3 The Capacity to Perform Measurement Model

Our second CFA model is the Capacity to Perform measurement model. This first-order CFA model hypothesises that the variable Capacity to Perform is a unidimensional construct composed of 10 items as presented schematically in figure 5.3. A more formal description of the hypothesised model can be presented. As such, it can be stated that the CFA model presented in figure 5.3 hypothesises a priori that:

1. Capacity to Perform can be explained by one latent variable.

2. There are ten observed variables (Items B9–B14, B17, B20, B39, and B76) as indicated by the ten rectangles shown in figure 5.3. They represent items of the Capacity to Perform Scale from the Questionnaire (see chapter 4).
3. Measurement error terms are uncorrelated.

The hypothesised model shown in figure 5.3 is labelled as Model 1. The following subsection shows the modification in specifications to be done in order to arrive to the final model that is considered to be a good fit for the data.

5.3.1 Assessment of the Capacity to Perform Measurement Model

The Capacity to Perform measurement model was initially evaluated using the ten observed items as shown in figure 5.3. In reviewing the goodness-of-fit statistics presented in table 5.2 (extracted from AMOS table I.1 in appendix I), the estimation of Model 1 yielded an overall $\chi^2_{(35)}$ value of 151.381 (with a χ^2/df ratio of 4.325 and a p value of 0.000), a GFI of 0.890, a CFI of 0.717, and an RMSEA of 0.124. All these statistics (χ^2/df > 2.000, p<0.05, GFI<0.900, CFI<0.900, and RMSEA>0.06) indicate a very poor fit of the model to the data. Therefore, it is clear that some modification in specification is needed in order to determine a model that better represents the sample data. As before, to conduct such modification, we need to pinpoint possible areas of misfit.

Six of the ten observed measures exhibited large error variances and/or non-significant parameter estimates. The modification indexes presented in table I.2 (see appendix I) suggested covariance links among these observed measures. These measures were considered to be problematic to the model and in the interest of scientific parsimony, were deleted from the measurement model. These items are B11, B13, B14, B20, B39, and B76. They have been deleted over six stages of modifying the specifications of Model 1. In each stage, the

item that was considered as the most problematic one was deleted. The final model was re-specified to be constructed of Items B9, B10, B12, and B17, and labelled as Model 2 (see figure 5.4).

A review of the fit indexes for Model 2 presented in table 5.2 and figure 5.4 (extracted from AMOS table I3 in appendix I), and a comparison of these values with those for Model 1 presented in table 5.2 and figure 5.3, reveal Model 2 to be the better fitting model against all different types of fit indexes. In particular, we note the improved GFI value of 0.995 (vs. 0.890), the improved CFI value of 0.999 (vs. 0.717), and the drop in RMSEA value (0.020 vs. 0.124).

To determine if the difference in fit between the models is statistically significant, we examine the difference in χ^2 ($\Delta\chi^2$) between the two models in relation to degrees of freedom equal to the difference in degrees of freedom (Δdf) between the two models. Comparison of Model 2 ($\chi^2_{(2)}$ =2.177) with Model 1 ($\chi^2_{(35)}$ =151.381) yields a difference in value of χ^2 of 149.204 ($\Delta\chi^2_{(33)}$ =149.204). This drop in χ^2 is greater than the table value of χ^2 distribution (take for example $\chi^2_{(40)}$ =55.76 at 0.05 significance), which indicates that the drop is statistically significant and therefore Model 2 is a better fitting model. Note also the substantial improvement in the significance of fit statistics for Model 2 (p=0.337 vs. 0.000).

Finally, since all the fit indexes indicate substantial improvement in model fit, Model 2 is considered to represent the best fitting model of the Capacity to Perform scale and it will be used as the measurement model for subsequent analyses of the structural equation model in chapter 6.

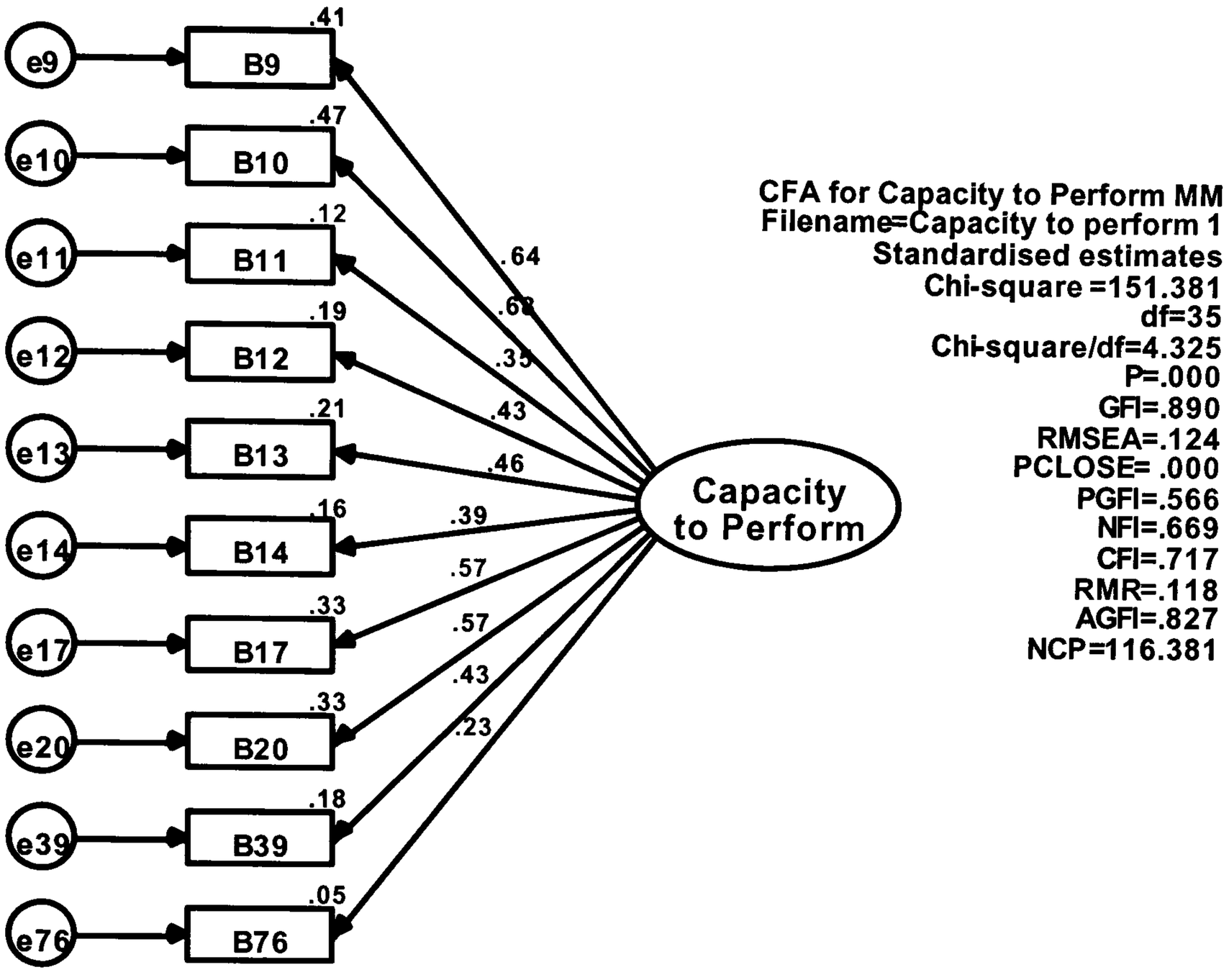

Figure 5.3 The Capacity to Perform Measurement Model (Model 1)

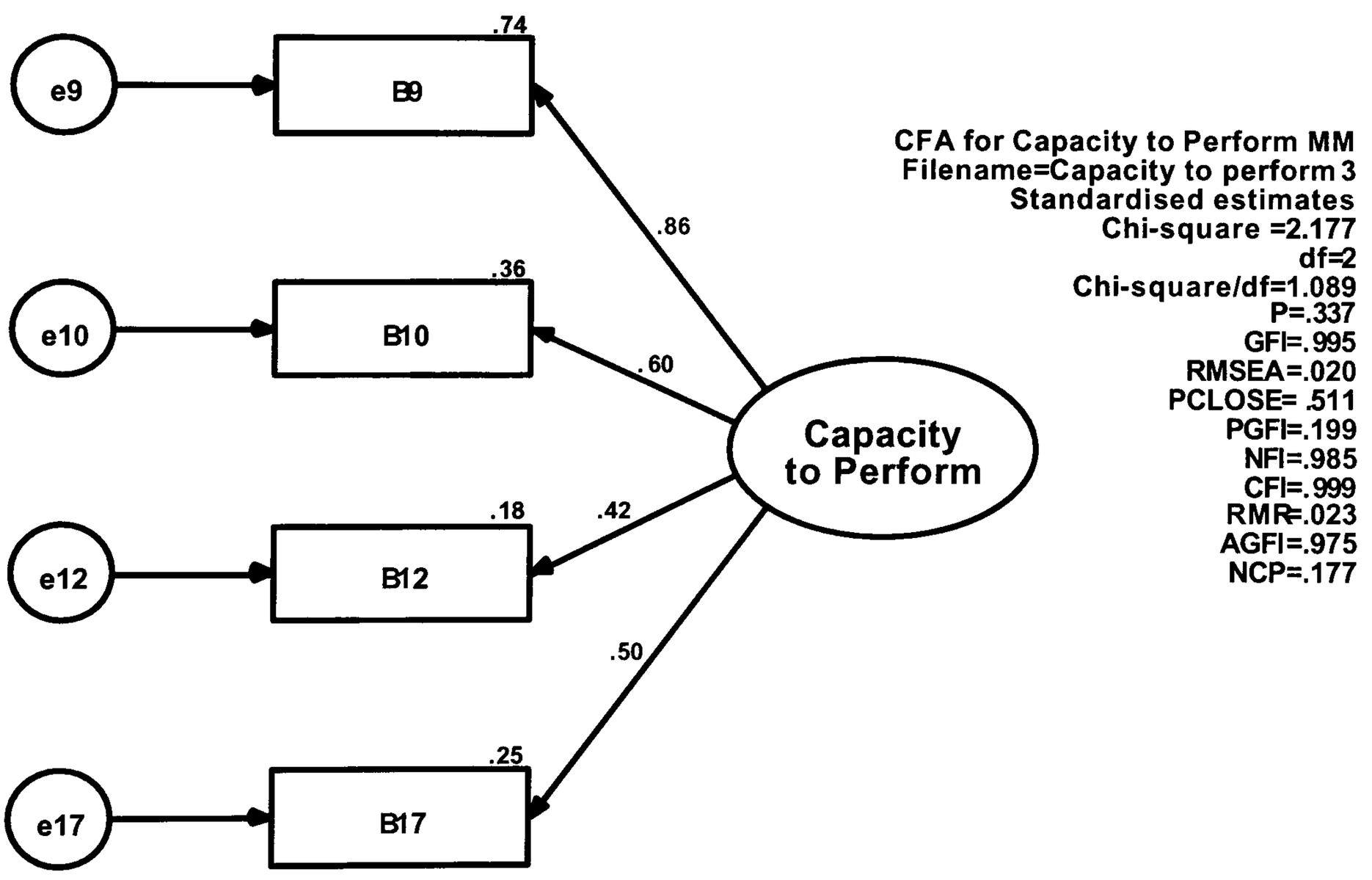

Figure 5.4 The Capacity to Perform Measurement Model (Model 2)

Table 5.2 Comparison of Goodness-of-Fit Indexes for the Capacity to Perform Measurement Models

Goodness-of-Fit Criteria	Index Value (Model 1)	Index Value (Model 2)
Model Fit		
Chi-square ($\chi 2$)	151.381	2.177
Degrees of freedom (df)	35	2
Normed Chi-square (NC=χ^2/df)	4.325	1.089
Probability value (p)	0.000	0.337
Goodness-of-fit index (GFI)	0.890	0.995
Adjusted GFI (AGFI)	0.827	0.975
Root-mean-square residual (RMR)	0.118	0.023
Root-mean-square error of approximation (RMSEA)	0.124	0.02
Probability of close fit (PCLOSE)	0.000	0.511
Model Comparison		
Tuckler-Lewis index (TLI)	0.637	0.996
Normed fit index (NFI)	0.669	0.985
Comparative fit index (CFI)	0.717	0.999
Model Parsimony		
Parsimony goodness-of-fit index (PGFI)	0.566	0.199
Parsimony comparative fit index (PCFI)	0.558	0.333
Parsimony normed fit index (PNFI)	0.520	0.328

5.4 The Individual Performance Measurement Model

Our next CFA model to be analysed is the Individual Performance measurement model. This first-order CFA model hypothesises that the variable Individual Performance is a unidimensional construct composed of 4 items as presented schematically in figure 5.5. A more formal description of the hypothesised model can be presented. As such, it can be stated that the CFA model presented in figure 5.5 hypothesises a priori that:

1. Individual Performance can be explained by one latent variable.

2. There are four observed variables (Items B5, B6, B25, and B26) as indicated by the four rectangles shown in figure 5.5. They represent items of the Individual Performance scale from the Questionnaire (see chapter 4).
3. Measurement error terms are uncorrelated.

The hypothesised model shown in figure 5.5 is labelled as Model 1. The following subsection shows the modification in specifications to be done in order to arrive to the final model that is considered to be a good fit for the data.

5.4.1 Assessment of the Individual Performance Measurement Model

In reviewing the goodness-of-fit statistics presented in table 5.3 and figure 5.5 (extracted from AMOS table J1 in appendix J), the estimation of Model 1 yielded an overall $\chi^2_{(2)}$ value of 9.931 (with a χ^2/df ratio of 3.466 and a p value of 0.031), a GFI of 0.985, a CFI of 0.963, and an RMSEA of 0. 107. Although the GFI (0.985) and CFI (0.963) suggest that the model is well fitting, the χ^2/df ratio (3.466>2.00), the p value (0.031<0.05), and the RMSEA value (0.107>0.06) indicate a very poor fit of the model to the data. Therefore, it is clear that some modification in specification is needed in order to determine a model that better represents the sample data. To do such modification, we need to pinpoint possible areas of misfit.

The AMOS programme produced no modification indexes (MIs) that suggest any modification. In such a case we need to take a closer look into the wording of the items used in the Individual Performance construct in order to suggest some alternative modification. Examining the 4 items of the Individual Performance scale (see appendix E) shows that Item B6 is a direct wording question that tries to measure the Individual Performance of the respondents at work. Moreover, Item B6 has the lowest factor loading value among the four

items. Item B26 focuses more on the efforts that an employee exerts in the job rather than the specific outcomes that he or she should produce. Both Items B5 and B25 focus on producing results that match the targeted standards within an acceptable deadline. In the interest of maintaining the conceptualisation of the Individual Performance variable that has support from the literature, Items B6 and B26 were cancelled from Model 1. By doing so, the degrees of freedom reduced to -1. We need to gain 2 more degrees of freedom in order to identify the model, and therefore two constraints need to be imposed. It is found that among the different possibilities of imposing constrains, the two constraints that yielded the best results were when the regression weights of both items were set to be equal to 1; and the variances of the residual errors of Item B25 and the latent variable were set to be equal to each other. Therefore, Model 1 was re-specified by cancelling Items B6 and B26, constraining the two regression weights of items B5 and B25 to be equal to 1, and constraining the variances of the residual errors of Item B25 and the latent variable to be equal to each other; the re-specified model is labelled as Model 2 as shown in figure 5.6.

A review of the fit indexes for Model 2 presented in table 5.3 and figure 5.6 (extracted from AMOS table J2 in appendix J), and a comparison of these values with those for Model 1 presented in table 5.3 and figure 5.5, reveal Model 2 to be the better fitting model against all different types of fit indexes. In particular, we note the improved GFI value of 0.998 (vs. 0.985), the improved CFI value of 1.000 (vs. 0.963), and the drop in RMSEA value (0.000 vs. 0.107).

To determine if the difference in fit between the models is statistically significant, we examine the difference in χ^2 ($\Delta\chi^2$) between the two models in relation to degrees of freedom equal to the difference in degrees of freedom

(Δdf) between the two models. Comparison of Model 2 ($\chi^2_{(1)}$ =0.355) with Model 1 ($\chi^2_{(2)}$ =6.931) yields a difference in value of χ^2 of 6.576 ($\Delta\chi^2_{(1)}$ =6.576). This drop in χ^2 is greater than the table value of χ^2 distribution ($\chi^2_{(1)}$ =3.841), which indicates that the drop is statistically significant and therefore Model 2 is a better fitting model.

Finally, since all the fit indexes indicate substantial improvement in model fit, and in the interest of parsimony and conceptualisation of the Individual Performance scale, Model 2 is considered to represent the best fitting model of the Individual Performance scale and it will be used as the measurement model for subsequent analyses of the structural equation model in chapter 6.

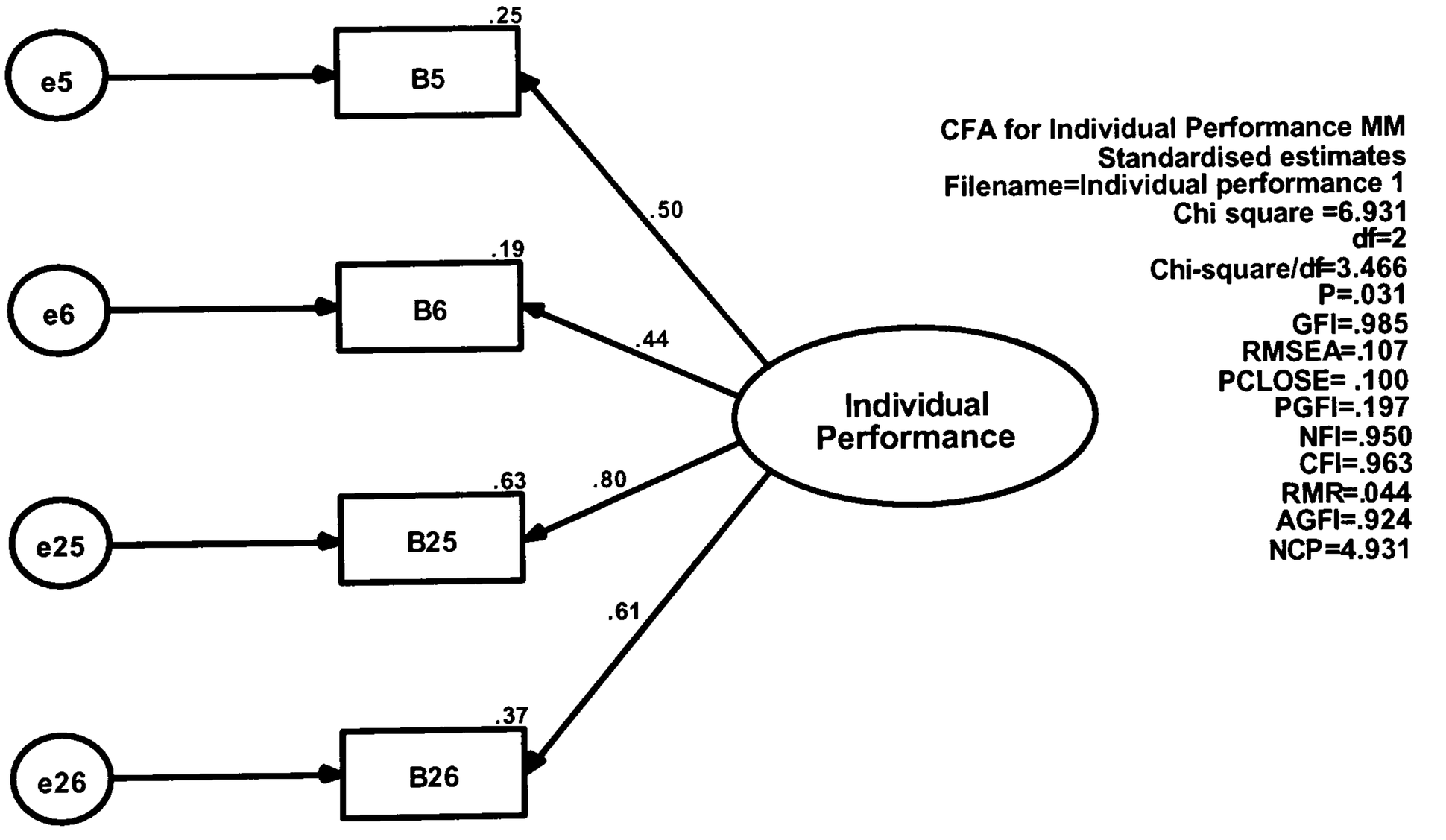

Figure 5.5 The Individual Performance Measurement Model (Model 1)

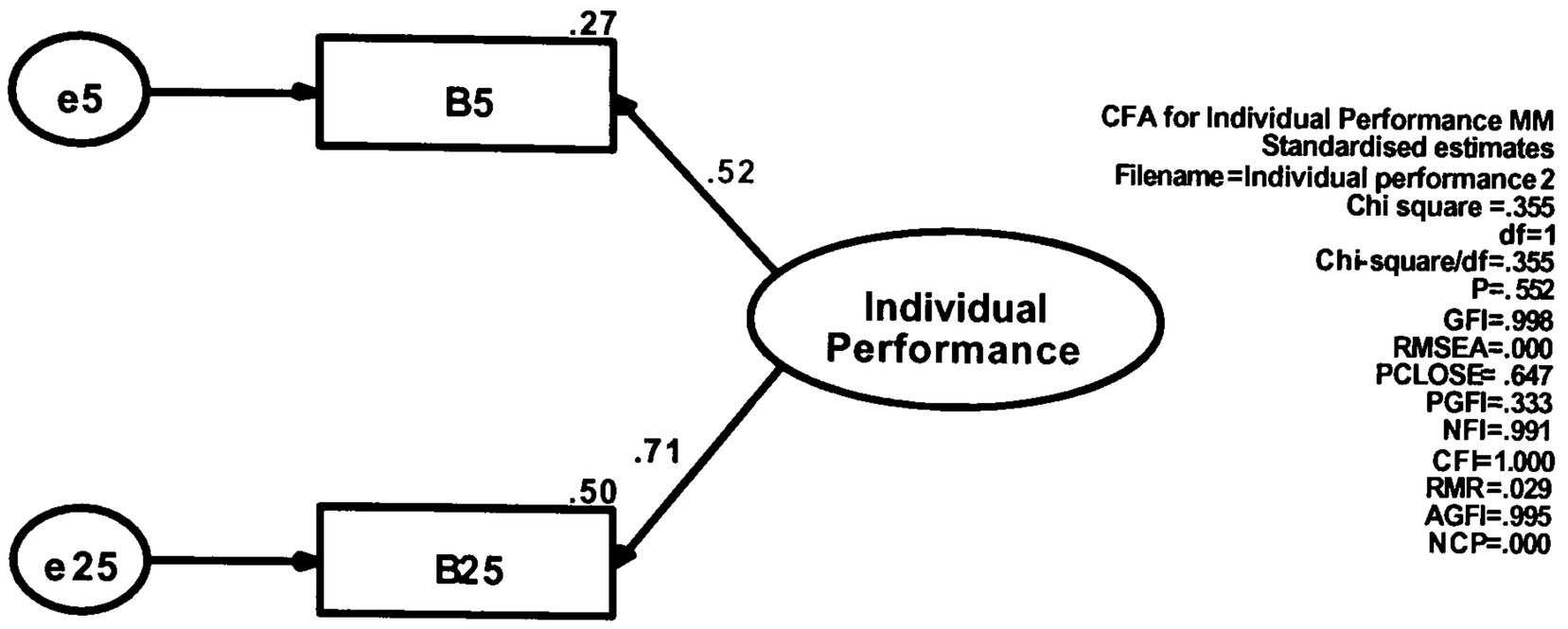

Figure 5.6 The Individual Performance Measurement Model (Model 2)

Table 5.3 Comparison of Goodness-of-Fit Indexes for the Individual Performance Measurement Models

Goodness-of-Fit Criteria	Index Value (Model 1)	Index Value (Model 2)
Model Fit		
Chi-square (χ^2)	6.931	0.355
Degrees of freedom (df)	2	1
Normed Chi-square (NC=χ^2/df)	3.466	0.355
Probability value (p)	0.031	0.552
Goodness-of-fit index (GFI)	0.985	0.998
Adjusted GFI (AGFI)	0.924	0.995
Root-mean-square residual (RMR)	0.044	0.029
Root-mean-square error of approximation (RMSEA)	0.107	0.000
Probability of close fit (PCLOSE)	0.100	0.647
Model Comparison		
Tuckler-Lewis index (TLI)	0.888	1.018
Normed fit index (NFI)	0.950	0.991
Comparative fit index (CFI)	0.963	1.000
Model Parsimony		
Parsimony goodness-of-fit index (PGFI)	0.197	0.333
Parsimony comparative fit index (PCFI)	0.321	1.000
Parsimony normed fit index (PNFI)	0.317	0.991

5.5 The Organisational Performance Measurement Model

The fourth CFA model to be analysed is the Organisational Performance measurement model. This first-order CFA model hypothesises that the variable Organisational Performance is a unidimensional construct composed of 2 items as presented schematically in figure 5.7. A more formal description of the hypothesised model can be presented. As such, it can be stated that the CFA model presented in figure 5.7 hypothesises a priori that:

1. Organisational Performance can be explained by one latent variable.
2. There are two observed variables (Items B7 and B8) as indicated by the two rectangles shown in figure 5.7. They represent items of the Organisational Performance scale from the Questionnaire (see chapter 4).
3. Measurement error terms are uncorrelated.

The following subsection shows the modification in specifications to be done in order to arrive to the final model that is considered to be a good fit for the data.

5.5.1 Assessment of the Organisational Performance Measurement Model

There are only two items in this measurement model and hence the number of degrees of freedom for the model is -1 ($p(p+1)/2 - t = 2x3/2 - 4 = -1$). Since we cannot delete any item in this case, two constraints need to be imposed in order to gain 2 more degrees of freedom so that the model becomes identified with 1 degree of freedom. It is found that among the different possibilities of imposing constrains, the two constraints that yielded the best results were when the regression weights of both items were set to be equal to 1; and the variances of the residual errors of Item B8 and the latent variable were set to be equal to each other. Therefore, the model was identified by constraining the two

regression weights of items B7 and B8 to be equal to 1 and constraining the variances of the residual errors of Item B8 and the latent variable to be equal to each other. This can be noted from figure K.2 (see appendix K).

In reviewing the goodness-of-fit statistics for the Organisational Performance measurement model presented in table 5.4 and figure 5.7 (extracted from AMOS table K.1 in appendix K), the estimation of the model yielded an overall $\chi^2_{(1)}$ value of 1.182 (with a χ^2/df ratio of 1.182 and a p value of 0.277), a GFI of 0.995, a CFI of 0.998, and an RMSEA of 0.029. All these indexes suggest that the model is fitting the sample data very well (see table 4.21 for goodness-of-fit criteria), and therefore this model will be used as the measurement model for Organisational Performance for subsequent analyses of the structural equation model in chapter 6.

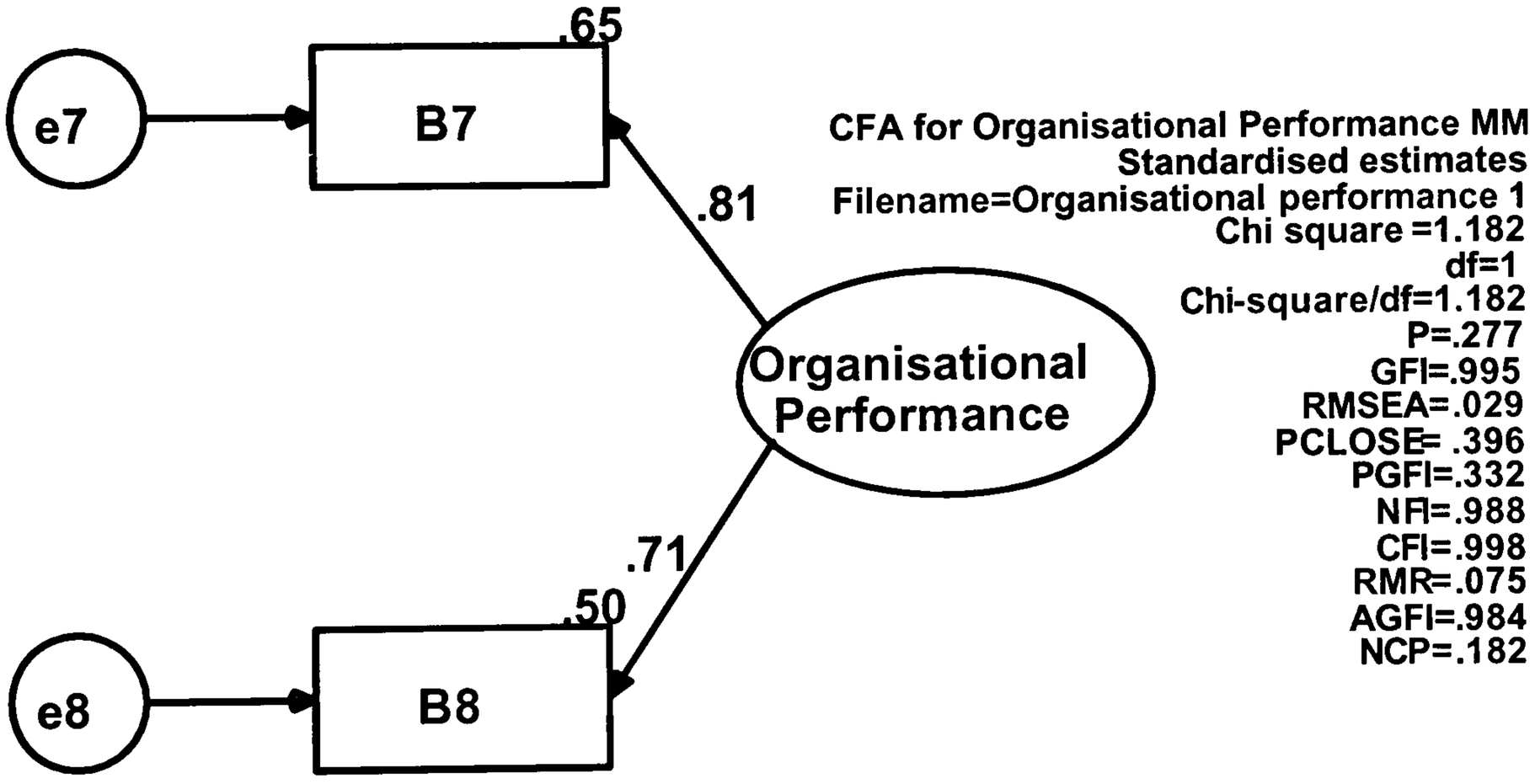

Figure 5.7 The Organisational Performance Measurement Model

Table 5.4 Goodness-of-Fit Indexes for the Organisational Performance Measurement Model

Goodness-of-Fit Criteria	Index Value
Model Fit	
Chi-square (χ^2)	1.182
Degrees of freedom (df)	1
Normed Chi-square (NC=χ^2/df)	0.277
Probability value (p)	1.182
Goodness-of-fit index (GFI)	0.995
Adjusted GFI (AGFI)	0.984
Root-mean-square residual (RMR)	0.075
Root-mean-square error of approximation (RMSEA)	0.029
Probability of close fit (PCLOSE)	0.396
Model Comparison	
Tuckler-Lewis index (TLI)	0.998
Normed fit index (NFI)	0.988
Comparative fit index (CFI)	0.998
Model Parsimony	
Parsimony goodness-of-fit index (PGFI)	0.332
Parsimony comparative fit index (PCFI)	0.998
Parsimony normed fit index (PNFI)	0.988

5.6 The Motivation and Performance Antecedents Measurement Model

Our next confirmatory factor analysis (CFA) model is the Motivation and Performance Antecedents measurement model. This second-order CFA model hypothesises that the variable Motivation and Performance Antecedents is a multidimensional construct composed of eight factors as presented schematically in figure 5.8. A more formal description of the hypothesised model can be presented. As such, it can be stated that the Motivation and Performance Antecedents CFA model presented in figure 5.8 hypothesises a priori that:

1. Motivation and Performance Antecedents can be explained by the eight factors: Work Environment, Financial Benefits, Non-financial Benefits,

Clarity of Processes, Resources, Relations with Manager, Leadership of Top Management, and External Perception and Identity.

2. Each item of the observed measures has a non-zero loading on the factor (latent variable) it was designed to measure, and zero loadings on all other factors.
3. There are 100 observed variables as indicated by the 100 rectangles shown in figure 5.8. They represent items of the scales from the Questionnaire (see chapter 4).
4. The observed variables load on the first-order factors in the pattern shown in figure 5.8.
5. Covariation among the eight first-order factors would be explained fully by their regression on the second-order factor.
6. Errors of measurement associated with each observed variable are uncorrelated.

This model represent the most complicated one among the other measurement models that have been analysed in the previous sections because it contains 100 observed measures that load on eight first-order latent variables which in turn load on a second-order factor. It is considered as a complex CFA model because it contains a large number of parameters to be estimated (Byrne, 2001). It is expected that many of the 100 items that have been taken from the 120-item questionnaire (see appendix E), will cause problems in fitting the data to the hypothesised model for one reason or another. Possible reasons include, firstly, some items being highly non-normally distributed (see appendix F for normal distribution of all items of the questionnaire). Secondly, it is expected that some of the observed measures, within the same latent factor or across different ones, would be highly correlated and this would cause high covariance among the residuals of the observed measures of such nature and hence will cause high modification indexes (MIs) among these residuals. If the observed

measures of this nature load on different factors than it is expected that these observed measures would cause high regression loading on the factors they are linked to and hence would cause high MIs for these regression paths. This sometimes leads to the problem of multicollinearity (Schumacker and Lomax, 1996; Byrne, 2001). Therefore, it is expected that lot of modifications in specification are needed in order to determine a model that better represents the sample data. For the purpose of showing the different stages of modifying the specifications of the model in a summarised way, the model after each modification is labelled differently. So, the hypothesised model shown in figure 5.8 is labelled as Model 1. The following subsection shows the modification in specifications done in each stage until we arrive to the final model that is considered to be a good fit for the data.

5.6.1 Assessment of the Motivation and Performance Antecedents Measurement Models

In reviewing the criteria of the goodness-of-fit indexes in terms of their optimal values for Model 1, we can see from table 5.5 (table 5.5 is summarised from AMOS output results presented in appendix L) that they are consistent in their reflection of an ill-fitting model. For example, values of GFI = 0.502 and CFI = 0.673 are indicative of a very poor fit of the model to the data. Therefore, it is clear that major modification in specifications of the model is needed in order to determine a model that better represents the sample data. To do such modification, we need to pinpoint possible areas of misfit by examining some of the output tables of AMOS (see appendix L).

Turning to table L2 in appendix L, where MIs associated with Model 1 are presented, reveals large MIs associated with covariances and regression weights. For the purpose of saving space, only large values of MIs are shown in the table (MIs $\geq$ 30 for covariances and MIs $\geq$ 10.5 for regression weights are shown).

Large MIs associated with covariance would argue for the presence of error covariances, and those associated with regression weights would argue for the presence of factor cross-loadings. The large MIs associated with covariance represent measurement errors in item responses, and they may derive from characteristics specific either to the items (items that represent a separate factor that is omitted or items that have a high degree of overlap in content) or to the respondents (e.g. biasness or social desirability). The large MIs associated with regression weights indicate that an item either loads on more than one factor or loads on another factor (Byrne, 2001).

A review of the MIs for the regression weights reveals that items B92, B93, B120, B100, B84, B71, B43, B55, B106, B77, B55, and B41 indicate cross loading on other factors. Reviewing the MIs associated with covariances reveals very clear evidence of misspecified error covariances in many pairs of items. To decide which item in each pair is more problematic than the other one, the item that has more covariance errors with other items has been considered to be more problematic. These items are B82, B92, B45, B115, B74, B54, B15, B23, B120, B30, B61, and B69. To identify other sources of misspecification, the significance of the regression weights was reviewed. It was found that the regression weight of the factor Work Environment on Item B47 is very insignificant ($p=0.637$). Also, most of these items have exhibited standardised residual errors that are higher than the recommended cut point of 2.58 (Joreskog and Sorbom, 1988). Taken together, all the items that have been mentioned above, with the exception of two items, have been cancelled from Model 1 and another model was re-specified with these items deleted and labelled as Model 2 (see figure L3 in appendix I). The two items that have been retained were Items B92 and B93 and it was for the reason of maintaining the Resources scale at this stage.

A comparison of the fit indexes between Model 1 and Model 2 presented in table 5.5 reveals Model 2 to be a better fitting model against all different types on fit indexes. It is noted that all fit indexes for Model 2 showed reasonable improvement over Model 1. In particular, we note the improved GFI value of 0.569 (vs. 0.505), and the improved CFI value of 0.746 (vs. 0.673). However, despite this considerable improvement in fit indexes, still all fit indexes reflect an ill-fitting model. For example, values of GFI = 0.569 and CFI = 0.746 are indicative of a very poor fit of the model to the data. Therefore, more modifications in specifications of the model are needed in order to determine a model that better represents the sample data.

A very similar approach to modification of Model 1 has been followed to modification of model 2. In doing so, it was found that Items B95, B96, B86, B57, B 80, B90, B79, B102, and B51 have exhibited high covariance errors and/or factor cross-loadings. Also, it was found that the parameter estimates of the regression weights for Items B22 and B32 were non-significant. Therefore, Model 2 was re-specified with these items deleted and the new model was labelled as Model 3 (see figure L.5 in appendix L).

Continuing in a similar way, the initial model (Model 1) went through seven stages of modification (Model 1 to Model 8), where in each stage items that exhibited large MIs of error variances, large MIs of cross-loadings, non-significant parameter estimates, and/or large standardised residual errors were deleted. Table 5.6 describes the modified model in each stage. Before any item was deleted, it was ensured that the deleted item did not affect the conceptualisation of the construct it was part of.

A review of all the fit indexes for the eight models presented in table 5.5 reveals Model 8 to be the better fitting model against all different types on fit indexes.

The estimation of Model 8 yielded an overall $\chi^2_{(398)}$ value of 543.293, a χ^2/df ratio of 1.365, a GFI of 0.864, a CFI of 0.962, and an RMSEA of 0. 041. Although the GFI (0.864) suggests that the model is moderately fitting; the χ^2/df ratio (1.365), the CFI (0.962), and the RMSEA value (0.041) indicate a well fitting of the model to the data. In fact, considering the complexity of the model, GFI value of 0.864 is not bad. The drop in χ^2 ($\Delta\chi^2$) in each stage is found to be statistically significant and is therefore indicative of improvement in model fit through the stages of model modification.

Finally, since all the fit indexes indicate substantial improvement in model fit, and in the interest of parsimony and conceptualisation of the Motivation and Performance Antecedents scale, Model 8 is considered to represent the best fitting model of the scale and it will be used as the measurement model for the construct Motivation and Performance Antecedents throughout the analyses of the structural equation model in chapter 6.

One can note from comparing Model 8 shown in figure 5.9 and Model 1 shown in figure 5.8 that the first-order factor Non-financial Benefits was dropped from Model 8. A closer look into both models shows that items B42 and B101, which were part of the Non-financial Benefits factor, were moved to be part of the Work Environment factor in Model 8. This was found to be necessary to improve the model fit to the sample data and it was done in stage 6, which modified Model 6 to Model 7, as shown in figures L.11 and L.13 in appendix L. In other words, the factor Non-financial Benefits is seen to have loaded on the other factor Work Environment. This modification makes sense because the operationalisation of both factors are interrelated. Items B42 and B101 (see appendix E) relate to satisfaction with training and development opportunity as a non-financial benefit, which can be considered as a good feature of an effective work environment. So, one can expect an effective work environment

to have good non-financial benefits. Therefore, by incorporating the Non-financial Benefits factor into the Work Environment factor, the construct Motivation and Performance Antecedents is re-operationalised again to be in terms of seven factors rather than eight factors. These seven factors are: Work Environment, Relations with manager, Leadership of Top Management, Resources, Clarity of Processes, Financial Benefits, and External Perception and Identity.

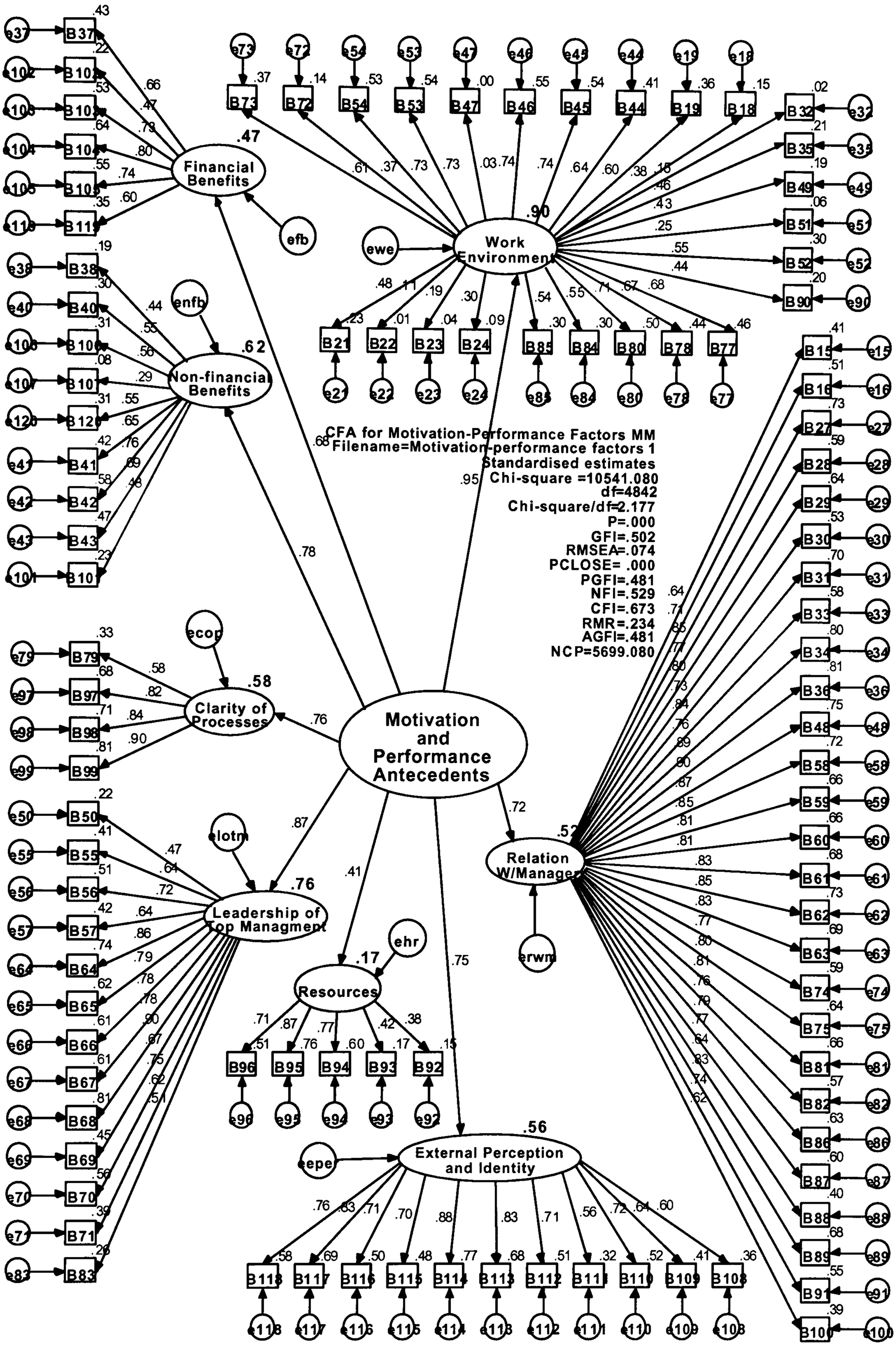

Figure 5.8 The Motivation and Performance Antecedents Measurement Model (Model 1)

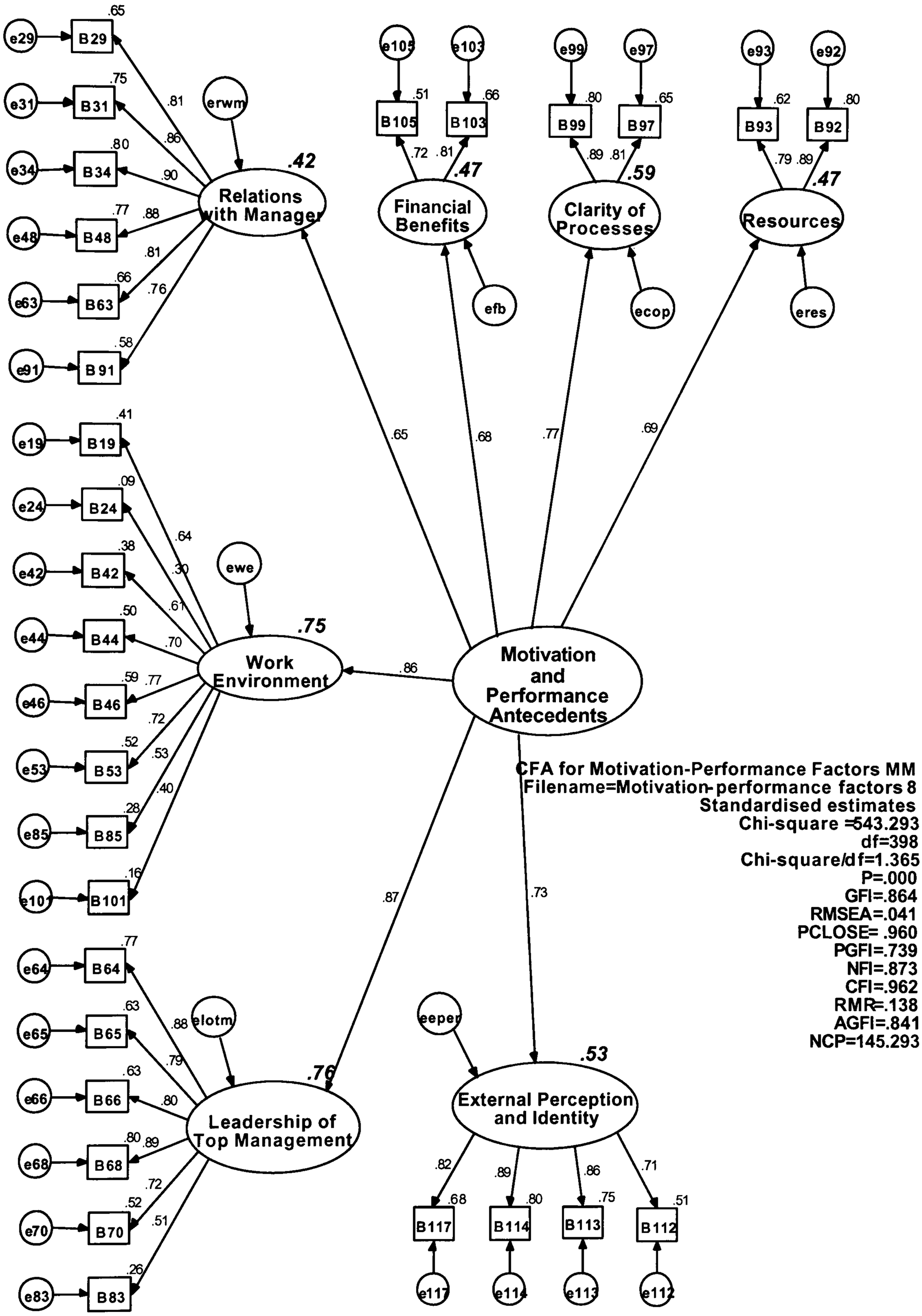

Figure 5.9 The Motivation and Performance Antecedents Measurement Model (Model 8)

Table 5.5 Comparison of Goodness-of-Fit Indexes for the Motivation and Performance Antecedents Measurement Models

Goodness-of-Fit Criteria	Index Value							
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Model Fit								
Chi-square (χ^2)	10541.08	6197.357	4253.043	2878.898	1815.75	1089.534	872.744	543.293
Degrees of freedom (df)	4842	2994	2202	1587	1072	694	587	398
Normed Chi-square (NC=χ^2/df)	2.177	2.07	1.931	1.814	1.694	1.57	1.487	1.365
Probability value (p)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Goodness-of-fit index (GFI)	0.502	0.569	0.635	0.690	0.748	0.802	0.823	0.864
Adjusted GFI (AGFI)	0.481	0.545	0.611	0.666	0.723	0.778	0.800	0.841
Root-mean-square residual (RMR)	0.234	0.186	0.179	0.174	0.168	0.156	0.145	0.138
Root-mean-square error of approximation (RMSEA)	0.074	0.070	0.066	0.061	0.057	0.051	0.047	0.041
Probability of close fit (PCLOSE)	0.000	0.000	0.000	0.000	0.008	0.345	0.733	0.960
Model Comparison								
Tuckler-Lewis index (TLI)	0.666	0.739	0.803	0.843	0.879	0.921	0.938	0.959
Normed fit index (NFI)	0.529	0.605	0.674	0.718	0.762	0.822	0.845	0.873
Comparative fit index (CFI)	0.673	0.746	0.810	0.849	0.885	0.926	0.943	0.962
Model Parsimony								
Parsimony goodness-of-fit index (PGFI)	0.481	0.539	0.596	0.640	0.682	0.714	0.726	0.739
Parsimony comparative fit index (PCFI)	0.658	0.725	0.783	0.815	0.841	0.868	0.878	0.880
Parsimony normed fit index (PNFI)	0.517	0.588	0.652	0.689	0.724	0.770	0.787	0.799

Table 5.6 Description of the Motivation and Performance Antecedents Measurement Models

Model	Items Deleted for Causing Misspecifications
Model 1	All 100 items there to start with
Model 2	B82, B45, B115, B74, B54, B15, B23, B30, B61, B69, B120, B100, B84, B55, B71, B43, B106, B77, B50, B41, and B47
Model 3	B95, B96, B86, B57, B80, B90, B79, B102, B51, B22, and B32
Model 4	B87, B89, B116, B18, B27, B21, B60, B56, B104, and B108
Model 5	B118, B36, B119, B62, B38, B40, B111, B78, B98, and B59
Model 6	B49, B107, B88, B75, B72, B16, B52, B109, and B37
Model 7	B42, B101, B94, B73, and B33
Model 8	B35, B28, B67, B81, B58, and B110

CHAPTER 6 ANALYSIS OF THE STRUCTURAL EQUATION MODEL

6.1 Introduction

The conceptual Structural Equation Model of Motivation and Performance and the associated hypotheses, developed from the literature in chapter 3, are tested and analysed in this chapter using the structural equation modelling (SEM) approach. SEM methodology takes a confirmatory (hypothesis-testing) approach to the analysis of causal relationships on multiple variables (Bentler, 1988). The concept of SEM was explained and discussed in detail in chapter 4. Figure 6.1 represents the proposed Structural Equation Model of Motivation and Performance and associated hypotheses. The figure shows the relationships among the five constructs: Motivation and Performance Antecedents, Motivation, Capacity to Perform, Individual Performance and Organisational Performance.

The following section presents the development and description of the proposed Structural Equation Model of Motivation and Performance developed from the literature. Subsequent sections assess and analyse the developed model and test the proposed hypotheses, followed by an analysis of the direct and indirect impact of the independent construct "Motivation and Performance Antecedents" on the dependent constructs "Motivation, Capacity to Perform, Individual Performance and Organisational Performance".

This Chapter discusses in detail the analysis of the hypothesised Structural Equation Model of Motivation and Performance.

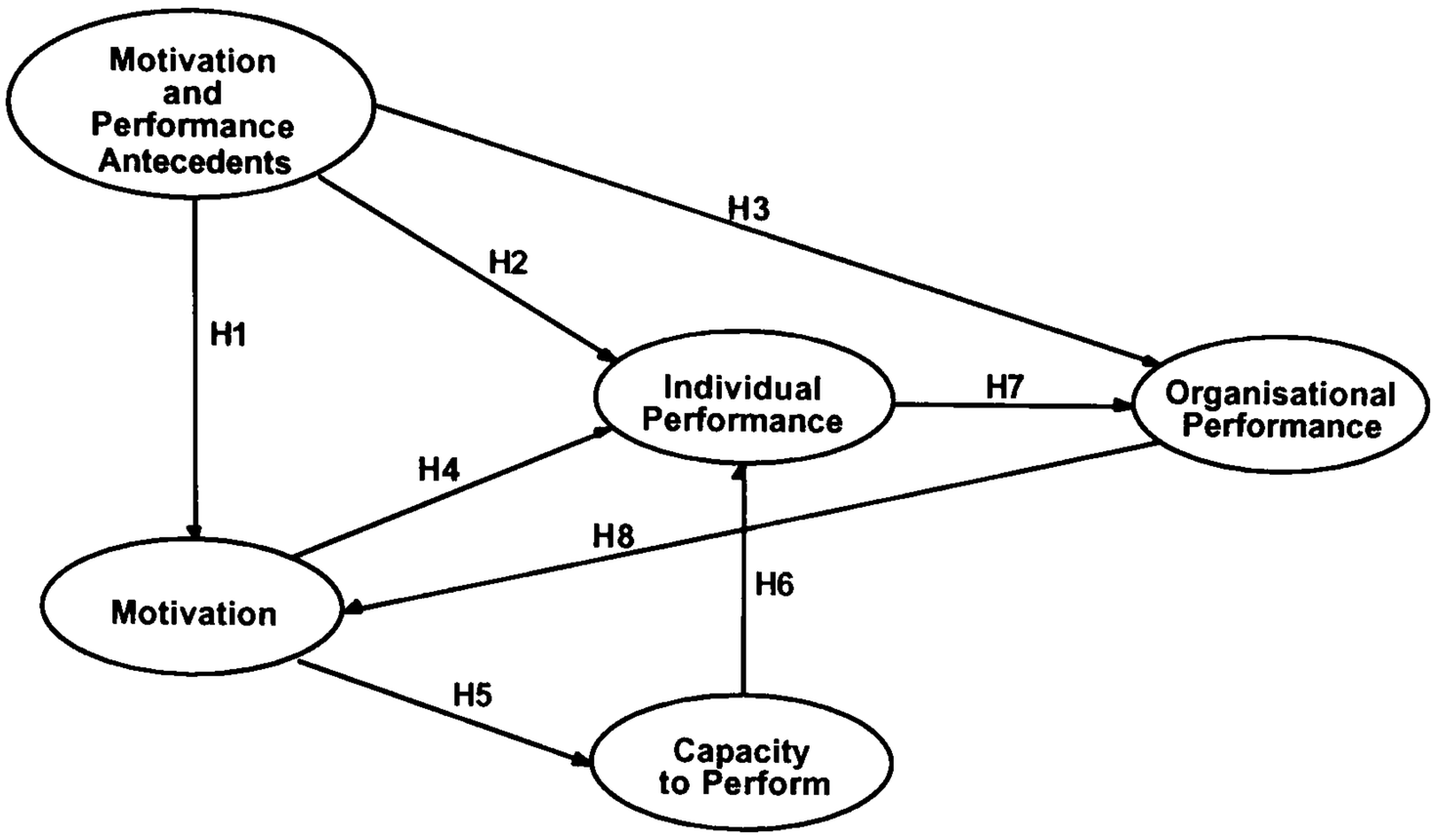

Figure 6.1 The Hypothesised Structural Equation Model of Motivation and Performance

6.2 Development and Description of the Motivation and Performance Structural Equation Model

The Structural Equation Model of Motivation and Performance is developed over three main stages. In the first stage, factors that relate to human motivation and performance were identified and synthesised in chapter 2 based on literature review. These factors are eight independent factors and four dependent factors. The eight independent factors are: Work Environment, Relations with Manager, Leadership of Top Management, Resources, Clarity of Processes, Financial Benefits, Non-financial Benefits, and External Perception and Identity. These eight factors are seen to act as antecedents to motivation and performance, and therefore are conceptualised into one major construct named "Motivation and Performance Antecedents". The four dependent factors are: Motivation, Capacity to Perform, Individual Performance, and Organisational Performance.

In the second stage, the 12 factors (8 independent and 4 dependent factors) were developed in chapter 3 based on empirical evidence from the literature. The relationships among the 8 independent factors as a major construct "Motivation

and Performance Antecedents" and the dependent factors "Motivation, Capacity to Perform, Individual Performance, and Organisational Performance" were discussed in chapter 3 and eight hypotheses that describe these relationships were derived. The eight hypotheses are exhibited in table 3.2 in chapter 3. These eight hypotheses were contractedly combined together to postulate a conceptual model using causal paths as shown in figure 6.1. The constructs' items were developed in chapter 4 based on available scales from the literature.

In the third stage, the measurement models for the major independent construct "Motivation and Performance Antecedents" and the other 4 dependent constructs "Motivation, Capacity to Perform, Individual Performance, and Organisational Performance" were developed in chapter 5 using a confirmatory factor analysis (CFA) approach. The five measurement models were developed using the AMOS 4.0 program developed by Small Water Inc. The purpose of this step is to develop well-fitting measurement models (valid and reliable constructs) that constitute the whole structural equation model. This step is vital for the development and analysis of a reliable structural equation model. The five measurement models, which were developed and identified in chapter 5, were used to build up the Structural Equation Model of Motivation and Performance. The AMOS 4.0 program was used to develop the Structural Equation Model of Motivation and Performance, the final version of which is shown in Figure 6.3. The maximum likelihood estimation method (described in chapter 4) was used to run and analyse the five measurement models and the Structural Equation Model of Motivation and Performance.

Before we examine the results of testing the hypothesised structural model of motivation shown in figure 6.1, we need to review the status of all factors comprising the model. The structural and measurement components for the model are shown in figure 6.3. A formal description of the hypothesised model

can be presented. As such, it can be stated that the structural model presented in figure 6.3 hypothesises a priori that:

1. Motivation and Performance Antecedents construct can be explained by the seven factors: satisfaction with work environment (Work Environment), financial benefits (Financial Benefits), clarity of processes (Clarity of Processes), resources (Resources), relationship and interaction with manager (Relation W/Manager), leadership of top management (Leadership of Top Management), and external perception and identity (External Perception and Identity).

2. Each item of the observed measures has a non-zero loading on the factor (latent variable) it was designed to measure, and zero loadings on all other factors.

3. There are 40 observed variables as indicated by the 40 rectangles. They represent items of the scales from the Questionnaire (see appendix E).

4. The observed variables load on the first-order factors in the pattern shown in figure 6.3.

5. Covariation among the seven first-order factors would be explained fully by their regression on the second-order factor (Motivation and Performance Antecedents).

6. Errors of measurement associated with each observed variable are uncorrelated.

7. The variable Motivation and Performance Antecedents is regressed on the variables Motivation (Hypothesis 1), Individual Performance (Hypothesis 2), and Organisational Performance (Hypothesis 3).

8. The variable Motivation is regressed on the variables Individual Performance (Hypothesis 4), and Capacity to Perform (Hypothesis 5).

9. The variable Individual Performance is regressed on the variable Organisational Performance (Hypothesis 6).

10. The variable Capacity to Perform is regressed on the variable Individual Performance (Hypothesis 7).

11. The variable Organisational Performance is regressed on the variable Motivation (Hypothesis 8).

6.3 Assessment of the Motivation and Performance Structural Equation Model

The hypothesised Structural Equation Model of Motivation and Performance shown in figure 6.3 was tested using AMOS 4.0. The structural and measurement components of the Motivation and Performance Structural Equation Model, along with the standardised coefficients and fit indexes, are shown in figure 6.3. Path coefficients between items (observed measures) and factors (latent variables) represent standardised regression weights, and numbers beside items/factors (on the top-right side of squares or ellipses) are squared multiple correlations.

Selected goodness-of-fit indexes related to the hypothesised model are presented in table 6.1. The χ^2 test of the model yielded an overall $\chi^2_{(764)}$ value of 1124.127 and a χ^2 p-value of 0.000. The χ^2 p-value of 0.000 (<0.050) indicates that the χ^2 statistic is insignificant. Considering the sensitivity of the χ^2 statistic test to sample size and to the complexity of the model, it is very normal to get a p-value of 0.000 and therefore, the use of the χ^2 statistic provides little guidance in determining the extent to which the hypothesised model fit the sample data (Byrne, 2001). Hence, researchers normally rely on other fit indexes mainly the χ^2/df ratio, GFI, CFI, and RMSEA.

The estimation of the Motivation and Performance Structural Equation Model yielded a χ^2/df ratio of 1.471, a GFI value of 0.812, a CFI value of 0.924, and an RMSEA value of 0. 047. Although the GFI (0.812 < 0.900) suggests that the model is moderately fitting; the χ^2/df ratio (1.471 < 2.00), the CFI value (0.924 > 0.900), and the RMSEA value (0.047 < 0.060) indicate a well-fitting model as all these values are well within the recommended ranges of acceptability (χ^2/df ratio ≤ 0.200, CFI ≥ 0.900, and RMSEA ≤ 0.060).

In addition to using the goodness-of-fit statistics, presented above, let us examine the regression weights and the squared multiple correlations. The regression weight between an independent variable and dependent variable represents the percentage of the independent variable used to explain the dependent variable. The squared multiple correlation (SMC) indicates the amount of variance of the dependent variable that is explained by the set of independent variables (i.e. the structural equation).

Looking at the unstandardised, as well as standardised, maximum likelihood parameter estimates presented in table M3 in Appendix M, we note that all

parameter estimates are statistically significant and substantively meaningful (maximum p = 0.039 <0.05) except the path from Organisation Performance to Motivation (p = 0.31 > 0.05). In fact, this path can be seen from figure 6.1 to close the loop of the paths (1) Motivation to Capacity to Perform (H5), (2) Capacity to Perform to Individual Performance (H6), and (3) Individual Performance to Organisational Performance (H7). This loop is named here as the "motivation loop". The importance of this loop results from the theory that employees generally like what they do well, and are therefore more likely to do it again and put in more effort in what they do well. If they are motivated in their work, they are more likely to put in extra efforts in their job, and therefore, their productivity gets better. Their productivity is seen by them to have a direct impact on the overall productivity of their organisation. Seeing this happening makes them feel good and sustain their motivation. Feelings of being able to do something and feelings of sustained motivation are linked into an upward spiral of a self-perception of Motivation → Capacity to Perform → Individual Performance → Organisational Performance → Motivation, and so on. This spiral relationship therefore leads to commitment and improved results in the workplace (Littlejohn, 2001). To illustrate the Motivation Loop pictorially, the paths that relate to this loop (H5: Motivation → Capacity to Perform, H6: Capacity to Perform → Individual Performance, H7: Individual Performance → Organisational Performance, and H8: Organisational Performance → Motivation) are drawn in a separate figure as shown below in figure 6.2.

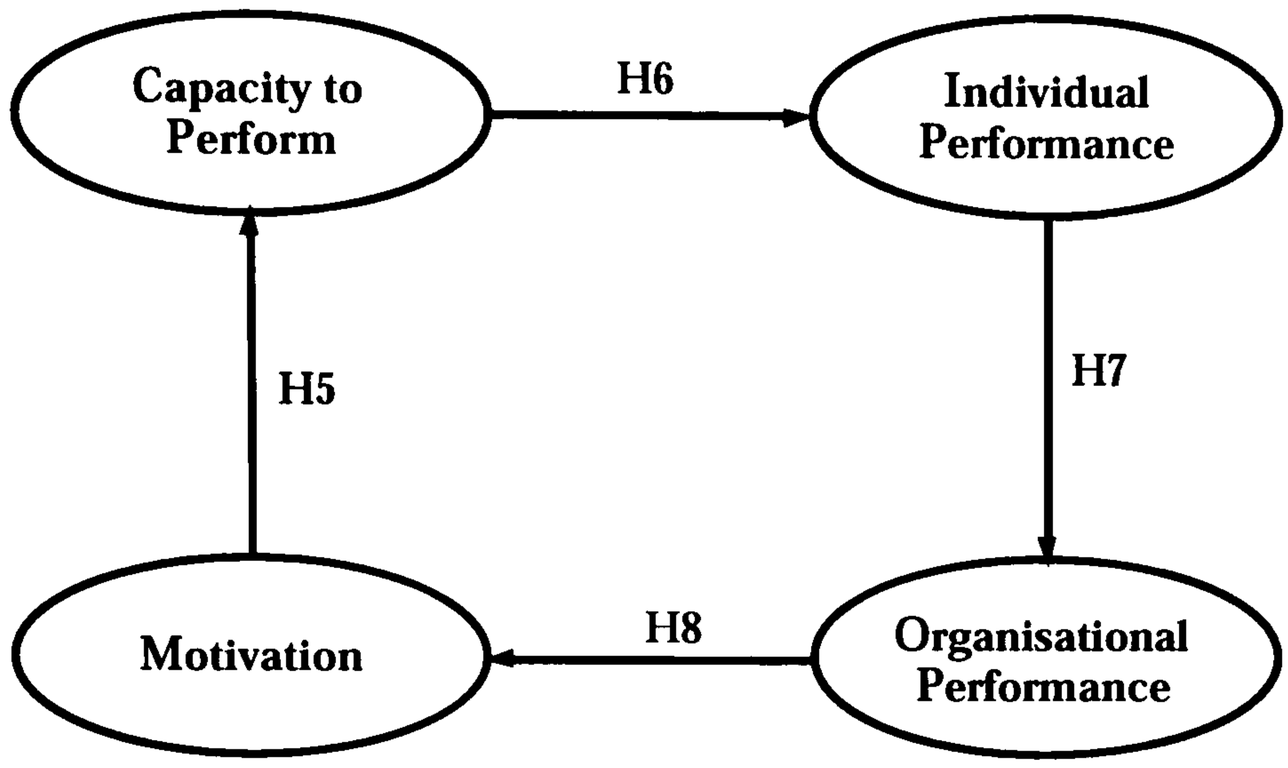

Figure 6.2 The Hypothesised Structural Equation Model of the Motivation Loop

It is found that the reason for this closing loop path (H8: Organisational Performance → Motivation) to be insignificant is the presence of the Motivation and Performance Antecedents second-order measurement component in the structural equation model. This second order measurement component has no direct relationship with the motivation loop. Considering the fact that this component is the most complex one in the structural equation model, it contributed a lot to the path from Organisational Performance to Motivation being statistically insignificant. To check whether the hypothesised closing path of the Motivation Loop is statistically significant or not, two approaches were adopted. The first approach was to simplify the hypothesised Motivation and Performance Structural Equation Model by converting the latent first-order factors into aggregated observed measures (see figure 6.4). The second approach was to only consider all the measurement components involved in the Motivation Loop in a separate structural equation model without incorporating the second-order variable of the Motivation and Performance Antecedents (see figure 6.5). In both approaches, it is found that all parameter estimates are

statistically significant and substantively meaningful. The analyses of the regression weights for the causal links in the structural equation model of motivation and performance will be discussed in the hypotheses testing section (section 6.4).

It is also necessary to examine the squared multiple correlation (SMC), also called the coefficient of determination, for each endogenous variable in the structural equation model. The SMC value for an endogenous variable represents the proportion of variance in this endogenous variable that is explained by its predictors. The SMC for each endogenous variable examined by this study is shown on the top-right side of the endogenous variable as shown in figure 6.3 (the SMCs for the endogenous variables are also presented in table M4 in appendix M). Let us consider the SMC values for the variables that relate to human performance and organisational performance. The SMC values for these dependent variables are: 0.65 for Individual Performance, and 0.62 for Organisational Performance. These two values imply that the model explained a large part of the variance in human and organisational performance. To understand what SMC means, let us take two examples; one for a latent endogenous variable (e.g. Individual Performance) and another one for an observed endogenous variable (e.g. B5). In the first example, the SMC value for the variable Individual Performance is 0.65 (indicated in figure 6.3). This means 65 % of the variance associated with the variable Individual Performance is accounted for by its three predictors: Motivation and Performance Antecedents, Motivation, and Capacity to Perform. In the second example, the SMC value for the observed measure B5 is 0.59 (see figure 6.3). In this case, the observed measure B5 is predicted by only one variable, which is Individual Performance. Therefore, the SMC 0.59 indicates 59% of the variance associated with the observed measure B5 is explained by the predictor variable Individual Performance.

Finally, on the basis of (a) the adequacy of fit statistics and unstandardised and standardised solutions, (b) the fact that the hypothesised structural model substantively represents a reasonable fit to the sample data, c) relatively small values of MIs, d) the considerable and significant regression weights, and e) the considerable SMC values for dependent variables, the hypothesised Motivation and Performance Structural Equation Model is considered to best represent a good fitting model to the sample data. It is important to mention here that alternative models were examined with paths added, reversed or removed, but none improved the model fit.

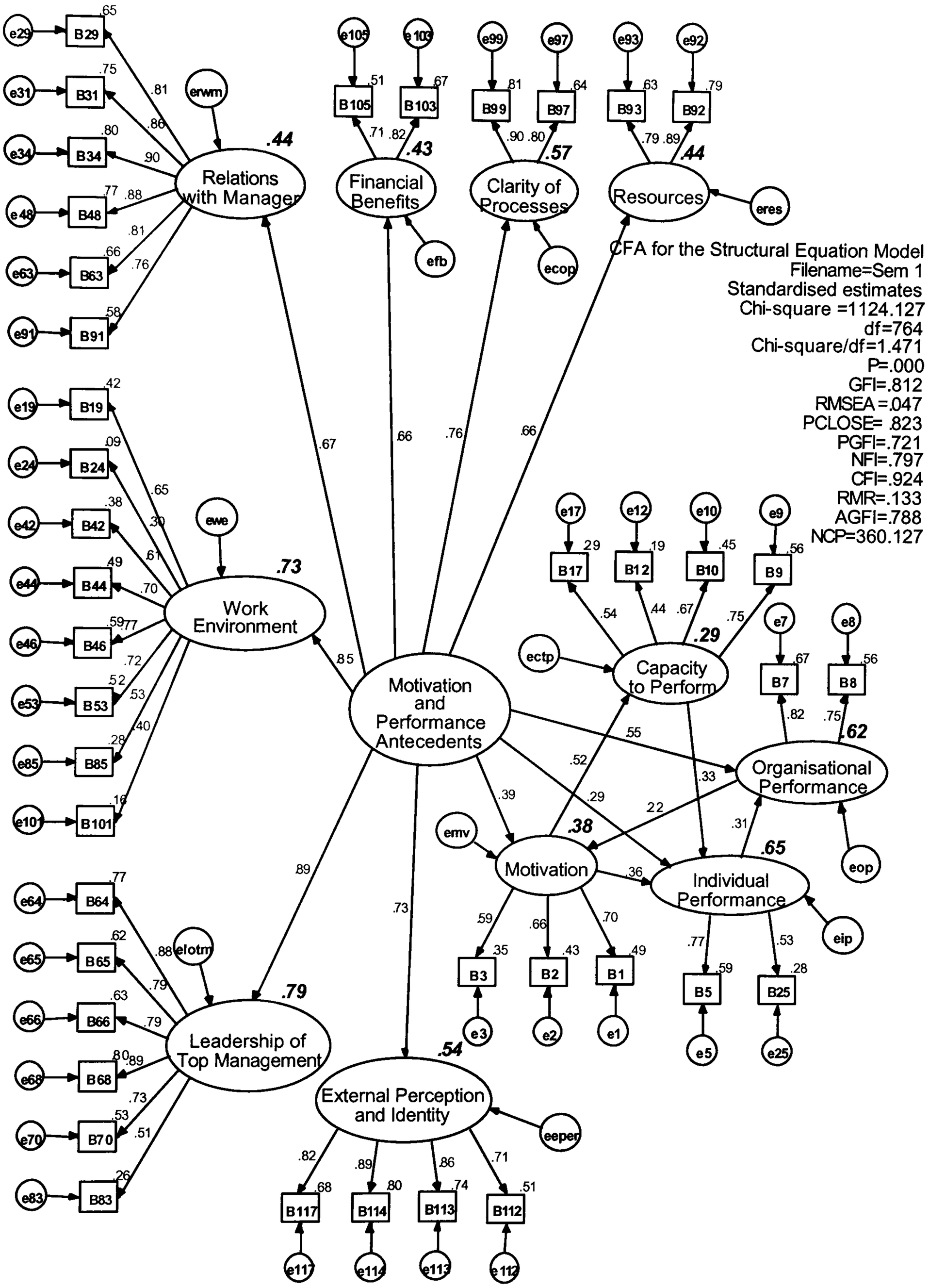

Figure 6.3 The Hypothesised Structural Equation Model of Motivation and Performance: Structural and Measurement Components

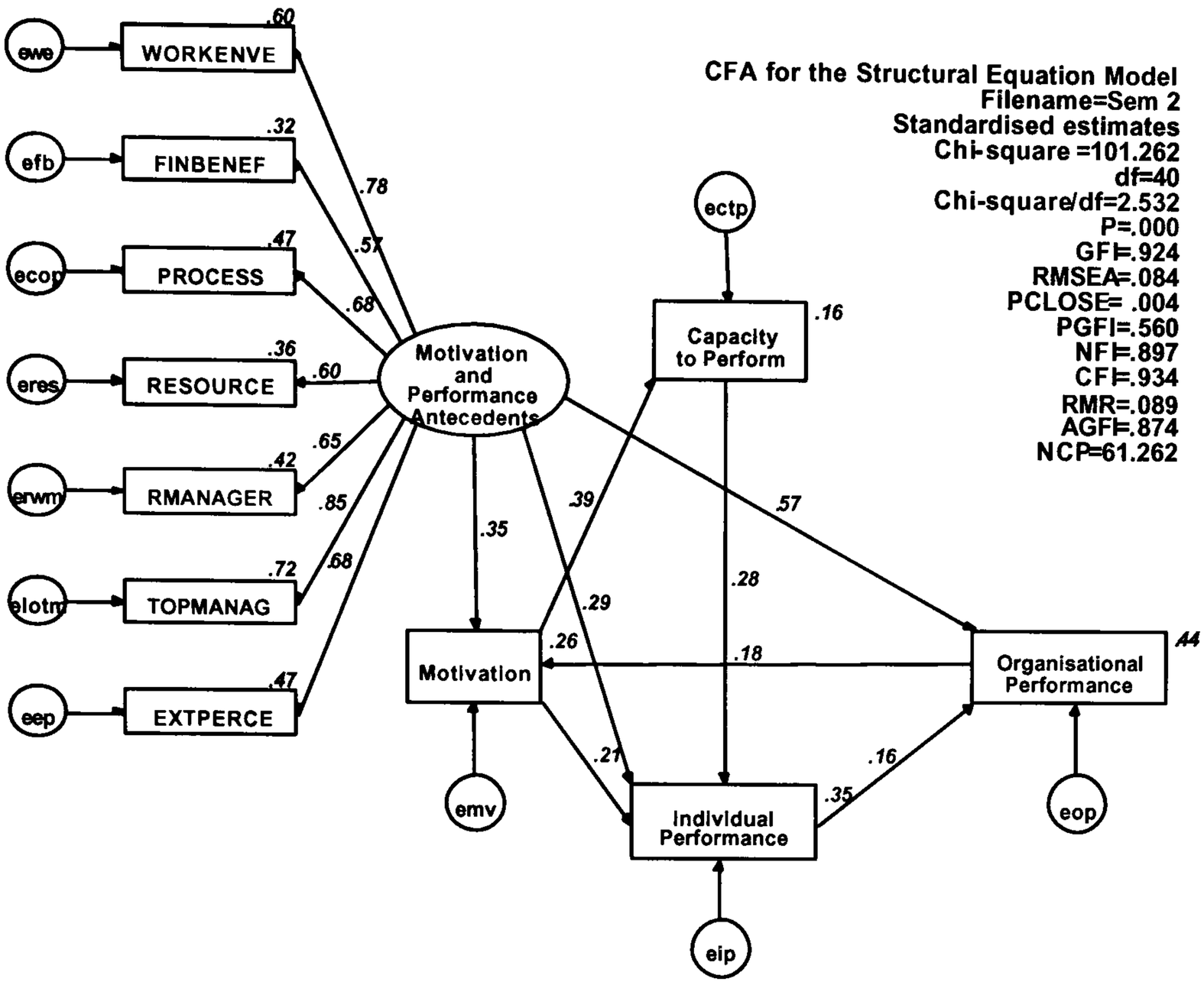

Figure 6.4 The Hypothesised Structural Equation Model for Motivation with Standardised Estimates (aggregated measures)

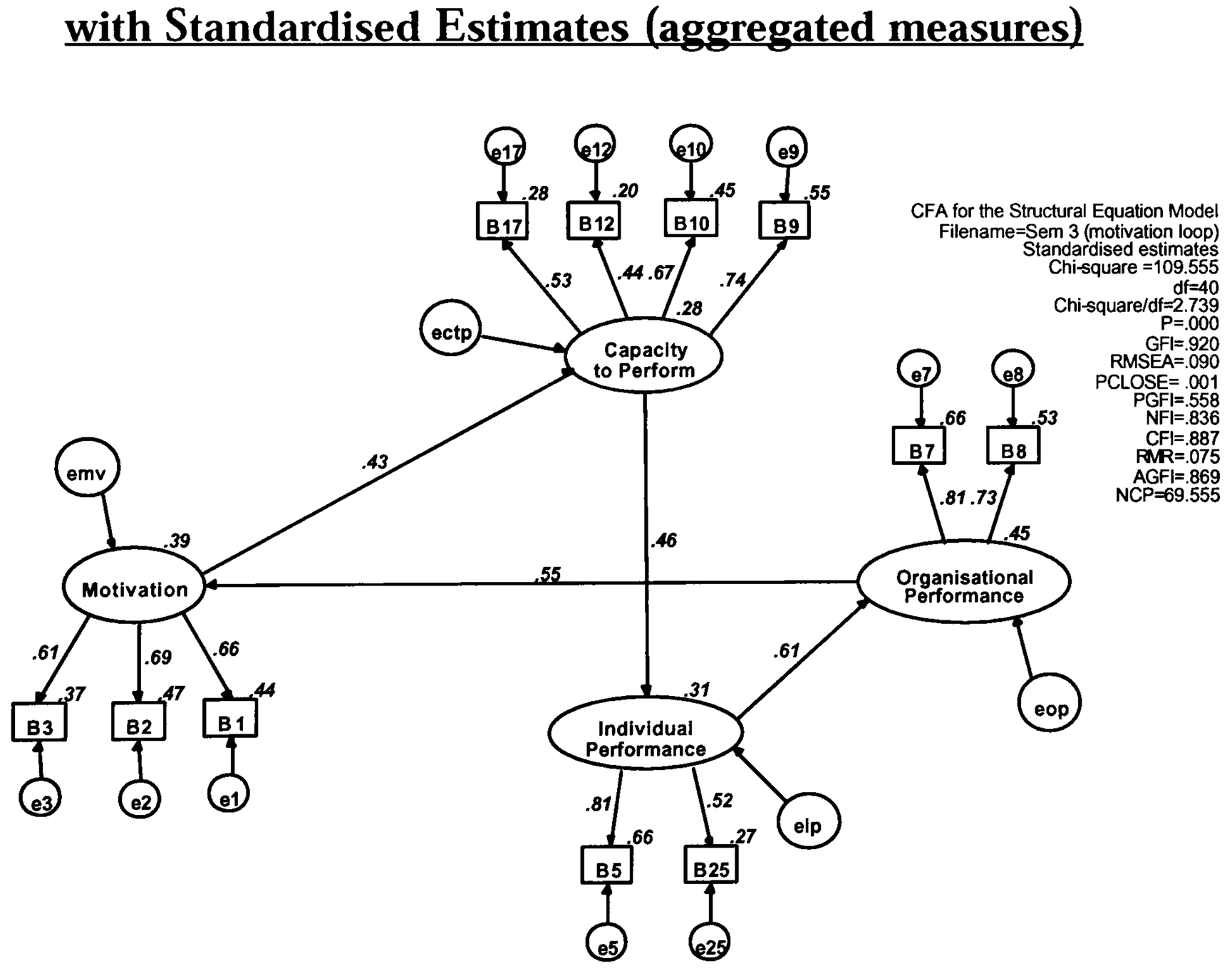

Figure 6.5 The Hypothesised Structural Equation Model for the Motivation Loop with Standardised Estimates

Table 6.1 Goodness-of-Fit Indexes for the Hypothesised Structural Equation Model of Motivation and Performance

Goodness-of-Fit Criteria	Model 1	Model 2
Model Fit		
Chi-square (χ^2)	1124.127	101.262
Degrees of freedom (df)	764	40
Normed Chi-square (NC=χ^2/df)	1.471	2.532
Probability value (p)	0.000	0.000
Goodness-of-fit index (GFI)	0.812	0.924
Adjusted GFI (AGFI)	0.788	0.874
Root-mean-square residual (RMR)	0.133	0.089
Root-mean-square error of approximation (RMSEA)	0.047	0.084
Probability of close fit (PCLOSE)	0.823	0.004
Model Comparison		
Tuckler-Lewis index (TLI)	0.918	0.909
Normed fit index (NFI)	0.797	0.897
Comparative fit index (CFI)	0.924	0.934
Model Parsimony		
Parsimony goodness-of-fit index (PGFI)	0.721	0.56
Parsimony comparative fit index (PCFI)	0.861	0.679
Parsimony normed fit index (PNFI)	0.743	0.652

Legend: Model 1 ≡ the structural equation model without aggregated measures; Model 2 ≡ the structural equation model with aggregated measures.

6.4 Hypotheses Testing

Now, after the hypothesised model shown in figure 6.3 is considered to be valid, the structural hypotheses shown in figure 6.1 can be tested. The hypotheses were tested by examining the statistical significance, size, and direction of the path coefficients in the structural equation model. Throughout the analyses of the hypotheses, the statistical significance is considered to be at least at 95% interval confidence level (that is $p \leq 0.050$). A significance level of 0.050 corresponds with a critical ratio (z value) of 1.96. Therefore, using the significance level of 0.05, any causal path with a critical ratio that exceeds 1.96 in magnitude would be considered to be significant. The critical ratio (CR) is an observation on a

random variable that has an approximately standard normal distribution. The critical ratio is obtained by dividing the estimate by its standard error (Arbuckle and Wothke, 1999).

Empirical support for the hypothesised links between constructs were examined using direct effects, indirect effects, and total effects. Impact of the direct effects involves tests of the direct, unmediated links between constructs (i.e., those without intervening constructs). Indirect effects for a pair of constructs result from alternative paths of influence that run through mediating constructs. The total effects add the indirect effects to the direct effects. Therefore, the total effects present a more complete indication of the influence of one construct on another one (Bollen, 1989). The direct effects will be used to test the hypotheses corresponding to the eight causal links (H1-H8). The indirect effects will be used to test the hypotheses corresponding to mediation effects of the construct Motivation on the effect of the construct Motivation and Performance Antecedents on the constructs Individual Performance and Organisational Performance (H9 and H10).

6.4.1 Impact of the Direct Effects

There are eight causal links among the five constructs in the Structural Equation Model of Motivation and Performance as shown in figure 6.1. These eight causal links correspond with hypotheses H1-H8. Each causal link between any two constructs represent a direct effect link between the two constructs and therefore, the eight causal links in the structural equation model can be used to test the hypotheses H1-H8. All the direct effects are shown in figure 6.6 and also in table 6.2 below.

Table 6.2 Standardised Direct Effects Estimates between Each Pair of Constructs in the Structural Equation Model of Motivation and Performance

Causal Path	Regression weight (B)	Significance Level (p)	Critical Ratio (CR)
H1: Motivation and Performance Antecedents → Motivation	0.389	0.036	2.094
H2: Motivation and Performance Antecedents → Individual Performance	0.294	0.005	2.822
H3: Motivation and Performance Antecedents → Organisational Performance	0.552	0.000	4.60
H4: Motivation → Individual Performance	0.362	0.012	2.506
H5: Motivation → Capacity to Perform	0.520	0.000	4.457
H6: Capacity to Perform → Individual Performance	0.326	0.004	2.900
H7: Individual Performance → Organisational Performance	0.306	0.039	2.064
H8: Organisational Performance → Motivation	0.224	0.310	1.016

The eight hypotheses H1-H8 are tested below.

Hypothesis 1 states as follows:

H1: *Motivation and Performance Antecedents positively influences Employee's Motivation.*

According to H1, the existence of Motivation and Performance Antecedents should increase the likelihood that employees will be motivated in their work. The standardised regression weight for the direct effect of Motivation and Performance Antecedents on Motivation is 0.39 (see figure 6.3). This regression weight is strong relative to the other regression weights presented in figure 6.3. This direct effect is statistically significant at the 0.05 level (p=0.036). The critical ratio (CR) associated with this path is 2.094 (see table M.4 in Appendix M), which is significant (>1.96). Overall, these results provide support for Hypothesis 1 and therefore it is accepted.

Hypothesis 2 states as follows:

H2: *Motivation and Performance Antecedents positively influences Employee's Individual Performance.*

Hypothesis 2 implies that the existence of Motivation and Performance Antecedents should have a positive direct effect on the Individual Performance of employees at their work. The standardised regression weight for the direct effect of Motivation and Performance Antecedents on Individual Performance is moderate (0.29). This direct effect is statistically significant at the 0.01 level (p=0.005). The critical ratio (CR) associated with this path is 2.822, which is significant. Overall, these results provide support for Hypothesis 2 and therefore it is accepted.

Hypothesis 3 states as follows:

H3: *Motivation and Performance Antecedents positively influences Organisational Performance.*

Hypothesis 3 suggests that the existence of Motivation and Performance Antecedents should also have a positive direct effect on the Organisational Performance of the firm. The standardised regression weight for the direct effect of Motivation and Performance Antecedents on Organisational Performance is very strong (0.55). This direct effect is statistically significant at the 0.001 level (p=0.000). The critical ratio (CR) associated with this path is 4.600, which is very significant. Overall, these results provide strong support for Hypothesis 3 and therefore it is accepted.

Hypothesis 4 states as follows:

H4: *Employee's Motivation positively influences his/her Individual Performance.*

According to H4, if an employee is motivated at his or her job then he or she will put in extra efforts towards improving his or her job tasks and performance. The standardised regression weight for the direct effect of Motivation on Individual Performance is relatively strong (0.36). This direct effect is statistically significant at the 0.05 level (p=0.012). The critical ratio (CR) associated with this path is 2.506, which is significant. Overall, these results provide support for Hypothesis 4 and therefore it is accepted.

Hypothesis 5 states as follows:

H5: *Employee's Motivation positively influences his/her Capacity Perform.*

According to H5, if an employee is motivated at his or her job then he or she will put on more efforts toward increasing his or her capacity to perform the job tasks. The standardised regression weight for the direct effect of Motivation on Capacity to Perform is very strong (0.52). This direct effect is statistically significant at the 0.001 level (p=0.000). The critical ratio (CR) associated with this path is 4.457, which is very significant. Overall, these results provide strong support for Hypothesis 5 and therefore it is accepted.

Hypothesis 6 states as follows:

H6: *Employee's Capacity to Perform positively influences his/her Individual Performance.*

Hypothesis 6 implies that if an employee is having stronger capacity to perform his or her job tasks then he or she is more likely to perform better. The standardised regression weight for the direct effect of Capacity to Perform on Individual Performance is relatively strong (0.33). This direct effect is statistically significant at the 0.005 level (p=0.004). The critical ratio (CR) associated with this path is 2.900, which is significant. Overall, these results provide support for Hypothesis 6 and therefore it is accepted.

Hypothesis 7 states as follows:

H7: *Employee's Individual Performance positively influences Organisational Performance.*

According to H7, organisations achieve high performance through the indivual performance of its people. The standardised regression weight for the direct effect of Individual Performance on Organisational Performance is relatively strong (0.31). This direct effect is statistically significant at the 0.05 level (p=0.039). The critical ratio (CR) associated with this path is 2.064, which is significant. Overall, these results provide support for Hypothesis 7 and therefore it is accepted.

Hypothesis 8 states as follows:

H8: *Organisational Performance positively influences employee's Motivation.*

Hypothesis 8 implies that if an employee is communicated the improved organisational results that he contributed towards, then he or she will be more motivated to produce the same results again and again. The standardised regression weight for the direct effect of Organisational Performance on Motivation is relatively weak (0.22). As previously mentioned, the direct effect of Organisational Performance on Motivation did not approach significance. This direct effect is not statistically significant at the 0.05 level (p=0.310). The critical ratio (CR) associated with this path is 1.016, which is not significant.

Before Hypothesis 8 is accepted or rejected, it is felt that a further careful look is needed. That is because originally this path was hypothesised as a closing loop to the paths (1) Motivation to Capacity to Perform, (2) Capacity to Perform to Individual Performance, and (3) Individual Performance to Organisational Performance. To check whether the hypothesised closing path of the Motivation

Loop (H8) is statistically significant or not, two approaches were adopted. The first approach was to only consider all the measurement components involved in the Motivation Loop in a separate structural equation model without incorporating the second-order variable of the Motivation and Performance Antecedents (see figure 6.5). The second approach was to simplify the hypothesised Motivation and Performance Structural Equation Model by converting the latent first-order factors into aggregated observed measures (see figure 6.4).

In the first approach; where only the constructs of Motivation, Capacity to Perform, Individual Performance, and Organisational Performance were incorporated in a separate structural equation model (see figure M.5 in appendix M); it is found that all parameter estimates are statistically significant at the 0.05 level. The standardised regression weight for the direct effect of Organisational Performance on Motivation is relatively moderate (0.34). This direct effect is statistically significant at the 0.05 level (p=0.044). The critical ratio (CR) associated with this path is 2.014, which is significant.

In the second approach, where the original hypothesised Motivation and Performance Structural Equation Model (see figure 6.3) was simplified by converting the latent first-order factors into aggregated observed measures (see figure 6.4), it is also found that all parameter estimates are statistically significant at the 0.05 level. The standardised regression weight for the direct effect of Organisational Performance on Motivation is relatively moderate (0.18). This direct effect is statistically significant at the 0.05 level (p=0.029). The critical ratio (CR) associated with this path is 2.189, which is significant. Overall, the results from both approaches provide support for Hypothesis 8 and therefore it is accepted.

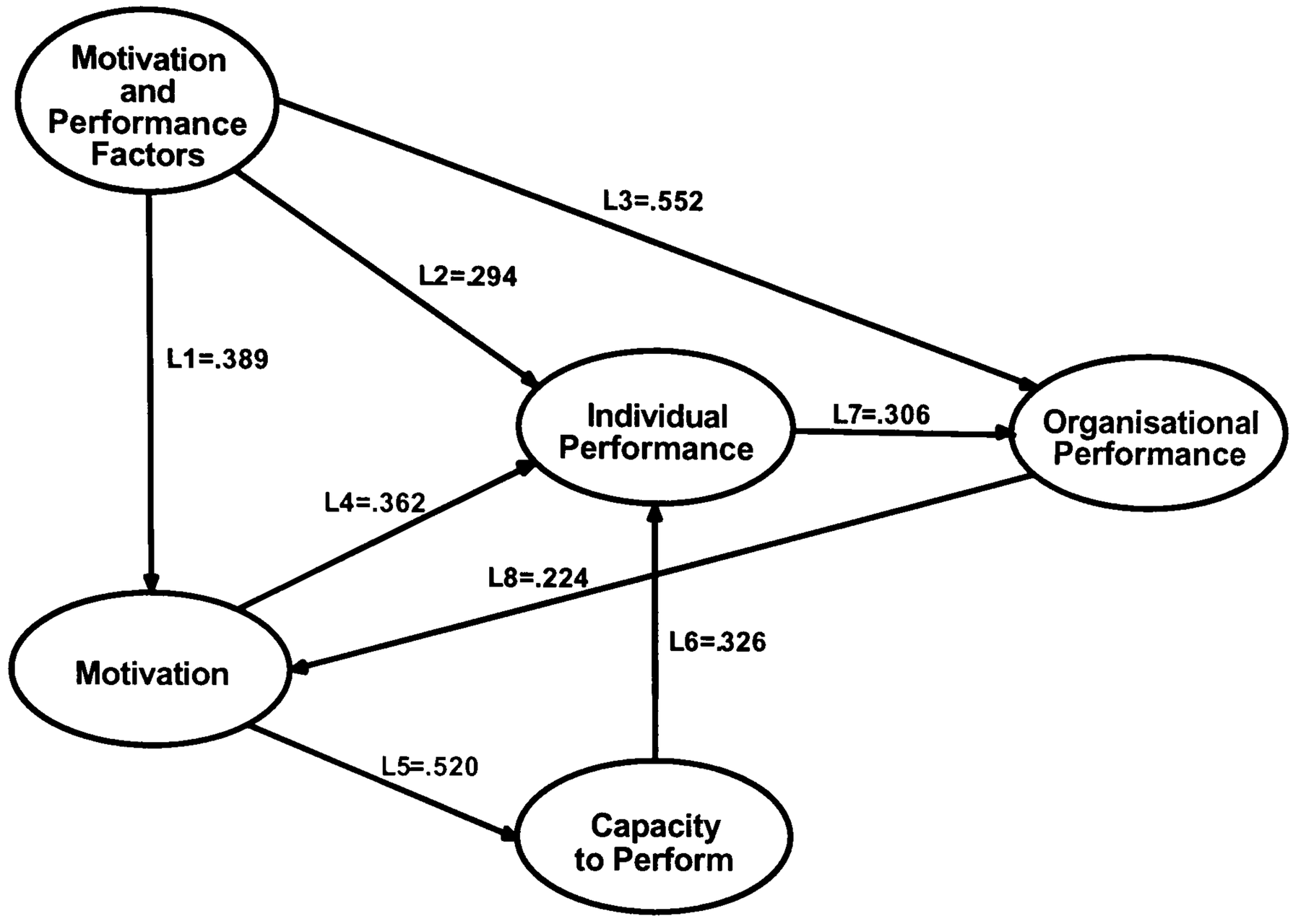

Figure 6.6 Direct Effects between Constructs of the Structural Equation Model of Motivation and Performance

6.4.2 Impact of the Indirect and Total Effects

The indirect effect of one construct on another one is found by summing the effects of all alternative routes through other constructs. The effect of any alternative route is calculated by multiplying the regression weights of all the paths involved in this route. The direct, indirect and total effects between each pair of constructs produced by AMOS are shown in table 6.3 (table 6.3 is summarised from AMOS output results presented in tables M.8, M.9, and M.10 in appendix M).

Examining the indirect effects presented in table 6.3 reveals that Motivation and Performance Antecedents has a relatively strong indirect effect on both Capacity to Perform and Individual Performance (0.287 and 0.294 respectively). In fact, the indirect effect of Motivation and Performance Antecedents on Capacity to

Perform corresponds with a zero direct effect. Interestingly, both the direct and the indirect effects of Motivation and Performance Antecedents on Individual Performance are equal to each other (0.294). Relatively moderate indirect effects can be noticed between six pairs of constructs. These moderate indirect effects are the effects of Motivation and Performance Antecedents on Organisational Performance (0.180), Motivation and Performance Antecedents on Motivation (0.164), Organisational Performance on Capacity to Perform (0.121), Organisational Performance on Individual Performance (0.124), Capacity to Perform on Organisational Performance (0.103), Motivation on Organisational Performance (0.168), and Motivation on Individual Performance (0.190). The indirect effects between the remaining pairs of constructs are noticed to be weak; they range from 0.008 to 0.071.

We need now to examine the total effects and to what extent the indirect effects provide support for the hypotheses 1-8 and hence to the mediation effect of motivation (Hypotheses 9 and 10). The independent variable Motivation and Performance Antecedents is involved in three hypotheses (H1, H2, and H3). Hypothesis 1 (Motivation and Performance Antecedents positively influences Employee's Motivation) receives a strong support as a result of the indirect effect (0.164) augmenting the direct effect (0.389). The total effect for Hypothesis 1 is 0.553 (vs. 0.389 for the direct effect), which is strong. The major contribution to this indirect effect resulted from the shortest alternative route, which is from Motivation and Performance Antecedents to Organisational Performance (L3) and then from Organisational Performance to Motivation (L8). The indirect effect due to this route is 0.124 (L3xL8 = 0.552x0.224 = 0.124). This represents 75.4% of the total indirect effect for H1.

Hypothesis 2 (Motivation and Performance Antecedents positively influences Employee's Individual Performance) receives a very strong support as a result of

the indirect effect (0.294) supplementing the direct effect (0.294). The total effect for Hypothesis 2 is 0.588 (vs. 0.294 for the direct effect), which is strong. The results for Hypothesis 2 (direct effect=indirect effect=0.294) reflect that Motivation and Performance Antecedents positively influences Employee's Individual Performance both directly and indirectly in equal manners. The largest contribution to this indirect effect resulted from the following three routes: (1) from Motivation and Performance Antecedents to Motivation (L1) and then from Motivation to Individual Performance (L4), (2) from Motivation and Performance Antecedents to Motivation (L1), then from Motivation to Capacity to Perform (L5), and then from Capacity to Perform to Individual Performance (L6), and (3) from Motivation and Performance Antecedents to Organisational Performance (L3), then from Organisational Performance to Motivation (L8), and then from Motivation to Individual Performance (L4). The indirect effect due to these three routes is 0.252 (L1xL4 + L1xL5xL6 + L3xL8xL4 = 0.389x0.362 + 0.389x0.520x0.326 + 0.552x0.224x0.362 =0.141+0.066 + 0.045= 0.252). This represents 85.7% of the total indirect effect for H2.

Hypothesis 3 (Motivation and Performance Antecedents positively influences Organisational Performance) receives a relatively good support as a result of the indirect effect (0.180) augmenting the direct effect (0.552). The total effect for Hypothesis 3 is 0.732 (vs. 0.522 for the direct effect), which is very strong. In fact, this total effect (0.732) is the strongest among the other pairs of constructs. The major contribution to this indirect effect resulted form the following two routes: (1) from Motivation and Performance Antecedents to Individual Performance (L2) and then from Individual Performance to Organisational Performance (L7), and (2) from Motivation and Performance Antecedents to Motivation (L1), then from Motivation to Individual Performance (L4), and then from Individual Performance to Organisational Performance (L7). The indirect effect due to these two routes is 0.133 (L2xL7 + L1xL4xL7 = 0.294x0.306 +

0.389x0.362x0.306 = 0.133). This represents 73.9% of the total indirect effect for H3.

Before we move to the other hypotheses, it is worth noting here that although there is no hypothesised path from Motivation and Performance Antecedents to Capacity to Perform, there is a moderate indirect effect from Motivation and Performance Antecedents on Capacity to Perform (0.287). Moreover, it is found from the analysis of the nested models that when a direct path is created from Motivation and Performance Antecedents to Capacity to Perform, the regression weight of this path becomes statistically very insignificant and the path becomes problematic to the structural equation model.

Looking at the variable Motivation as an independent variable, it directly influences both Individual Performance (H4) and Capacity to Perform (H5). Hypothesis 4 (Employee's Motivation positively influences his/her Individual Performance) received a strong support as a result of the indirect effect (0.190) supplementing the direct effect (0.362). The total effect for Hypothesis 4 is 0.551 (vs. 0.362 for the direct effect), which is strong. One can notice here that the indirect effect of Motivation on Individual Performance is almost half the direct effect (0.190 vs. 0.362). The major contribution to this indirect effect resulted from the shortest alternative route, which is from Motivation to Capacity to Perform (L5) and then from Capacity to Perform to Individual Performance (L6). The indirect effect due to this route is 0.170 (L5xL6 = 0.520x0.326 = 0.170). This represents 89.5% of the total indirect effect for H4.

Hypothesis 5 (Employee's Motivation positively influences his/her Capacity to Perform) receives a very weak support from the indirect effect (0.020 vs. 0.520 from the direct effect). This result is not strange as an employee's capacity to perform is expected to be self-driven by his/her motivation and what leads to

his/her motivation. The two variables that influence Motivation directly are Motivation and Performance Antecedents and Organisational Performance. It is expected that Motivation will act as a mediator between these two variables and the variable Capacity to Perform (see figure 6.6). In fact, the only strong indirect effect to Capacity to Perform came from these two variables. The indirect effect of Motivation and Performance Antecedents on Capacity to Perform is 0.287, and that of Organisational Performance on Capacity to Perform is 0.121. It is also expected that an employee's capacity to perform would positively influence his/her individual performance (direct effect) and in turn positively influence the performance of his/her organisation (indirect effect). This can be noticed from table 6.3 as the only relatively considerable indirect effect resulting from Capacity to Perform on the other constructs is that from Capacity to Perform on Organisational Performance (0.103). This results in Hypothesis 6 (Employee's Capacity to Perform positively influences his/her Individual Performance) receiving a very weak support from the indirect effect of Capacity to Perform on Individual Performance (0.012).

Similarly, both Hypotheses 7 and 8 receive very weak support from the indirect effects. The indirect effect for Hypothesis 7 (Employee's Individual Performance positively influences Organisational Performance) is 0.012, and that for Hypothesis 8 (Organisational Performance positively influences employee's Motivation) is 0.008. It is worth mentioning here that the variable Individual Performance has a weak indirect effect on all the constructs except a relatively moderate indirect effect on Motivation (0.071). This relatively moderate indirect effect is caused mainly by the route Individual Performance to Organisational Performance (L7) and then from Organisational Performance to Motivation (L8); which is part of the Motivation Loop discussed earlier. The variable Organisational Performance, as expected, has a direct effect on Motivation, and hence indirect effects on Capacity to perform and Individual performance.

Finally, the analyses of sample data in relation to the hypothesised model (figure 6.3) resulted in a strong support to all the hypotheses (H1-H8) from the direct effects. The indirect effects supported only four hypotheses (H1-H4). The total effects, therefore, supported all the hypotheses. The indirect effects will be further analysed in the next subsection to test the mediation effect of the variable Motivation between the independent variable Motivation and Performance Antecedents and the dependent variables Individual Performance (Hypothesis 9) and Organisational Performance (Hypothesis 10).

6.4.3 Testing for Mediation effects of Motivation

Many researchers use multiple regression analyses to test for mediation. The problem with using multiple regression approach is that it does not identify measurement problems that may influence results, because variables using this approach are estimated without taking into account the measurement of errors. Therefore, it is recommended that structural equation modeling (SEM) be considered for assessing mediation because it offers a reasonable way to control for measurement error and also it offers some interesting alternative ways to explore the mediation effect using more than one mediator (Baron and Kenny, 1986; Holmbeck, 1997; Hoyle and Kenny, 1999; Judd andKenny, 1981; Kline, 1998). So, working with SEM makes it easier to discover indirect effects in structural equation models because they involve latent variables with multiple observed measures that inherently correct for measurement error by estimating common and unique variance separately. Also, SEM allows discovering more complicated mediation models, such as those with several mediators linked serially or operating in parallel (or both).

Table 6.3 Standardised Direct, Indirect, and Total Effects Estimates between Each Pair of Constructs in the Structural Equation Model of Motivation and Performance

Effects From / Effects On	Motivation and Performance Antecedents	Organisational Performance	Capacity to Perform	Motivation	Individual Performance
Standardised Direct Effects					
Organisational Performance	**L3=0.552**	0	0	0	**L7=0.306**
Capacity to Perform	0	0	0	**L5=0.520**	0
Motivation	**L1=0.389**	**L8=0.224**	0	0	0
Individual Performance	**L2=0.294**	0	**L6=0.326**	**L4=0.362**	0
Standardised Indirect Effects					
Organisational Performance	**0.180**	0.038	**0.103**	**0.168**	0.012
Capacity to Perform	**0.287**	**0.121**	0.012	0.020	0.037
Motivation	**0.164**	0.008	0.023	0.038	0.071
Individual Performance	**0.294**	**0.124**	0.012	**0.190**	0.038
Standardised Total Effects					
Organisational Performance	**0.732 (H3)**	0.038	**0.103**	**0.168**	**0.317 (H7)**
Capacity to Perform	**0.287**	**0.121**	0.012	**0.539 (H5)**	0.037
Motivation	**0.553 (H1)**	**0.233 (H8)**	0.023	0.038	0.071
Individual Performance	**0.588 (H2)**	**0.124**	**0.339 (H6)**	**0.551 (H4)**	0.038

Legend: L ≡ factor loading or regression weight.

Before we continue, it is important to clarify the distinction between mediated effects and indirect effects, although some researchers use the two terms interchangeably (Holmbeck, 1997). A mediated effect is usually available when there is only one intervening variable between the independent variable and the dependent variable. An indirect effect is there from the independent variable to the dependent variable when there is one or more than one intervening variable between the independent variable and the dependent variable. So, a mediated effect is usually thought of as the special case of indirect effects when there is only one intervening variable between the independent variable and the dependent variable. Also, when there is a mediated effect, then the total effect from the independent variable to the dependent variable is significant while this is not necessarily true in the case of indirect effects. This means it is possible to find that the indirect effect is significant even when there is no evidence for a

significant total effect. So, examining the total effect can indicate whether or not the indirect effect also represents some mediation or not (Holmbeck, 1997).

To test for mediation between independent variables and a dependent variable via some mediator variables in a structural equation model, the guidelines outlined by Holmbeck (1997) for testing of mediation effects in structural equation models will be used. The Holmbeck (1997) procedure consists of four steps that are described as follows:

Step 1: The structural equation model with only direct effects of the independent variables on dependent variables is tested. All the indirect paths that pass through the mediator variables are constrained to zero in this model; i.e., their regression weights are forced to equal to zero. If this direct-effects model yields and adequate fit, the process can continue. For mediation to exist, the path coefficients in the direct-effects model must be significant.

Step 2: The overall structural equation model, including all direct and indirect effects paths, is tested. The overall model retains free paths for direct effects of the independent variables on the dependent variables, and retains also the indirect paths that pass through the mediator variables. If the overall model yields an adequate fit, then further steps are necessary.

Step 3: The fully mediated structural equation model is tested. In this model, all the direct paths between the independent variables and the dependent variables are constrained to zero; their regression weights are forced to equal to zero.

Step 4: Compare the overall model with the fully mediated model. If the chi-square difference test between the overall and fully mediated models indicates that the overall model is a better fitting model than the fully mediated model, then, according to Holmbeck (1997), a partial mediation exists between the independent variables and the dependent variables via the mediator variables. Otherwise, there exists a full mediation between the independent variables and the dependent variables via the mediator variables.

The key objective of this study was to assess human motivation as a mediator to human and organisational performance. To assess if the variable Motivation mediates the relationship between the independent variable Motivation and Performance Antecedents and the dependent variables Individual Performance and Organisational Performance, the direct-effects model, overall model and fully mediated model for the structural equation model of motivation and performance were run using the AMOS 4.0 programme. The AMOS 4.0 analyses results for the three models are presented in appendix M. Summary of the goodness-of-fit indexes and the regression weights, along with their significance level, for the three models are presented in tables 6.4 and 6.5, respectively. The procedure by Holmbeck (1997), outlined above, is used to test for any complicated mediation through Motivation.

In the first step, the direct-effects model was tested. The AMOS 4.0 analysis results for this model are shown in figures M.7 and M.8 and tables M.15 and M.16 in appendix M. The direct-effects model fit the data moderately well. For mediation to exist, the path coefficients in the direct-effects model must be significant; there must be significant direct effects of Motivation and Performance Antecedents on Individual Performance and Organisational Performance. Analyses (see Table 6.5) indicated that there were significant path

coefficients from Motivation and Performance Antecedents to Individual Performance (B=0.590; p=0.000) and to Organisational Performance (B=0.751; p=0.000). These findings indicate that mediation of the relations of Motivation and Performance Antecedents with Individual Performance and Organisational Performance was possible.

In the second step, the overall model was investigated. The AMOS 4.0 analysis results for this model are shown in figures M.1 and M.2 and tables M.1 and M.3 in appendix M. In fact this model represent the proposed structural model of motivation and performance that was assessed and accepted in section 6.3. The overall model yielded a good fit for the data. In this model, the direct effect path coefficients from Motivation and Performance Antecedents to Individual Performance and Organisational Performance were significant (B=0.294; p=0.005 and B=0.552; p=0.000, respectively; see figure 6.6). The indirect effect path coefficient from the independent variable Motivation and Performance Antecedents to the mediator variable Motivation was found to be significant at the 0.05 level (B=0.389; p=0.036). Also, the indirect effect path coefficient from the mediator variable Motivation to the dependent variable Individual Performance was found to be significant (B=0.362; p=0.012). Finally, the indirect effect from the mediator variable Motivation to the dependent variable Organisational Performance occurred mainly over two paths, first from Motivation to Individual Performance, which was mentioned before and found to be significant, and then from Individual Performance to Organisational Performance which was also found to be significant (B=0.306; p=0.039). This indicate that mediation between the independent variable Motivation and Performance Antecedents and the dependent variable Organisational Performance was caused by two intervening variables that are linked serially; Motivation and Individual Performance.

The results from steps 1 and 2 indicate that some mediation exists between the independent variable Motivation and Performance Antecedents and the dependent variables Individual Performance and Organisational Performance through the variable Motivation. To indicate whether this mediation is full or partial, steps 3 and 4 of the procedure are pursued.

In the third step, the fully mediated model was tested. The AMOS 4.0 analysis results for this model are shown in figures M.9 and M.10 and tables M.17 and M.18 in appendix M. Looking at the summarised results in table 6.5 shows that this model fits the data very poorly as three indirect paths caused inflated regression weights; i.e., their regression weights have values greater than 1.0 or less than −1.0 (B=3.745 for the path Motivation and Performance Antecedents → Motivation; B=1.230 for the path Individual Performance → Organisational Performance; and B=-4.410 for the path Organisational Performance → Motivation). Also the most important indirect path, which is from Motivation and Performance Antecedents to Motivation, was found to be very insignificant; p=0.134. A possible explanation for getting these inflated results is that the constrained paths were vital for the structural equation model. This is true in our case because the direct effects paths from the independent variable Motivation and Performance Antecedents to the dependent variables Individual Performance and Organisational Performance were found to be very important based on theoretical background and empirical evidence.

In step 4, we compare the fully mediated model with the overall model. From the results presented in step 3 above, it is clear that the overall model fits better than the fully mediated model; in fact the fully mediated model was rejected. Also, the chi-square difference test between the overall and fully mediated can be used. To determine if the difference in fit between the fully mediated model and the overall model is statistically significant, we examine the difference in χ^2 ($\Delta\chi^2$)

between the two models in relation to degrees of freedom equal to the difference in degrees of freedom (Δdf) between the two models. Comparison of the fully mediated model ($\chi^2_{(766)}$ =1131.043) with the overall model ($\chi^2_{(764)}$ =1124.127) yields a difference in value of χ^2 of 7.303 ($\Delta\chi^2_{(2)}$ =7.303). This drop in χ^2 is greater than the table value of χ^2 distribution ($\chi^2_{(2)}$ =5.991 for p value of 0.05; taken from statistical texts), which indicates that the drop is statistically significant and therefore the overall model is a better fitting model. The implication of these findings is that including the direct paths between the independent variable *Motivation and Performance Antecedents* and the dependent variables *Individual Performance* and *Organisational Performance* in the overall model significantly improved the model. This indicates that the mediation through *Motivation* is partial rather than full; i.e. the independent variable *Motivation and Performance Antecedents* affects the dependent variables *Individual Performance* and *Organisational Performance* both directly and indirectly. In fact, the overall model was already checked in section 6.3 and accepted as the most fitting model.

The above discussion provides support for Hypotheses 9 and 10 and indicates that Motivation mediates the relationship between the independent variable Motivation and Performance Antecedents and the dependent variables Individual Performance and Organisational Performance in a complicated manner. Hypotheses 9 and 10 are restated again here.

Hypothesis 9: *Employee's Motivation mediates the relationship of Motivation and Performance Antecedents with Human Performance.*

Hypothesis 10: *Employee's Motivation mediates the relationship of Motivation and Performance Antecedents with Organisational Performance.*

To understand the nature of the complicated mediation effect of Motivation, we need to spell out the different routes that explain how the independent variable *Motivation and Performance Antecedents* influences the dependent variables *Individual Performance* and *Organisational Performance* via *Motivation.*

To understand how human motivation mediates human performance, we need to consider the causal links between the independent variable Motivation and Performance Antecedents and the dependent variable Individual Performance through the variable Motivation. It is clear from figure 6.6 that Motivation and Performance Antecedents affects Individual Performance via Motivation through two routes. The first route consists of the following two paths: Motivation and Performance Antecedents → Motivation (H1) and Motivation → Individual Performance (H4). The effect of this route was found to be 0.141 (L1xL4 = 0.389x0.362 = 0.141). The second route consists of the following three paths: Motivation and Performance Antecedents → Motivation (H1), Motivation → Capacity to Perform (H5), and Capacity to Perform → Individual Performance (H6). The effect of this route was found to be 0.066 (L1xL5xL6 = 0.389x0.520x0.326 = 0.0.066). The effect of both routes is 0.207 (0.141 + 0.066 = 0.207), which represents 70 % of the total indirect effects from the independent variable Motivation and Performance Antecedents on the dependent variable Individual Performance (total indirect effect =0.294; see table 6.3). In the first route, Motivation is the only intervening variable between the independent and the dependent variables; while in the second route, Motivation combines serially with Capacity to Perform and both act as a mediator between the independent and the dependent variables.

To understand how human motivation mediates organisational performance, we need to consider the causal links between the independent variable Motivation and Performance Antecedents and the dependent variable Organisational

Performance through the variable Motivation. It is clear from figure 6.6 that Motivation and Performance Antecedents affects Organisational Performance via Motivation through two routes. The first route consists of the following two paths: Motivation and Performance Antecedents → Motivation (H1), Motivation → Individual Performance (H4), Individual Performance → Organisational Performance (H7). The effect of this route was found to be 0.043 (L1xL4xL7 = 0.389x0.362x0.306 = 0.043). The second route consists of the following four paths: Motivation and Performance Antecedents → Motivation (H1), Motivation → Capacity to Perform (H5), Capacity to Perform → Individual Performance (H6), and Individual Performance → Organisational Performance (H7). The effect of this route was found to be 0.020 (L1xL5xL6xL7 = 0.389x0.520x0.326x0.306 = 0.0.020). The effect of both routes is 0.063 (0.043 + 0.020 = 0.063), which represent 35 % of the total indirect effects from the independent variable Motivation and Performance Antecedents on the dependent variable Organisational Performance (total indirect effect =0.180; see table 6.3). In the first route, Motivation combines serially with Individual Performance and both act as a mediator between the independent and the dependent variables. In the second route, Motivation combines serially with Capacity to Perform and Individual Performance, and all act as a mediator between the independent and the dependent variables.

It is noticeable from the above discussion that that Motivation mediates human performance much stronger than organisational performance. This makes sense because one can expect that motivated employees will have a more direct effect on their task performance, which in turn will affect the performance of their organisation. In fact Individual Performance itself acts as a strong mediator to organisational performance.

To sum up, the discussion in this section provided a strong support to all the hypotheses (H1-H10) through analysing the direct and indirect effects in the proposed structural equation model of motivation and performance. The research results and findings will be further discussed in detail in the next chapter.

Table 6.4 Goodness-of-Fit Indexes for the Direct-effects, Fully Mediated, and Overall Models of the Motivation and Performance Structural Equation Model

Goodness-of-Fit Criteria	Direct Effects Model	Fully Mediated Model	Overall Model	Difference between Overall & Fully Mediated Models
Model Fit				
Chi-square (χ^2)	1269.818	1131.043	1124.127	7.303
Degrees of freedom (df)	770	766	764	2
Normed Chi-square (NC=χ^2/df)	1.649	1.477	1.471	--
Probability value (p)	0.000	0.000	0.000	--
Goodness-of-fit index (GFI)	0.789	0.811	0.812	--
Adjusted GFI (AGFI)	0.764	0.788	0.788	--
Root-mean-square residual (RMR)	0.2	0.134	0.133	--
Root-mean-square error of approximation (RMSEA)	0.055	0.047	0.047	--
Probability of close fit (PCLOSE)	0.071	0.804	0.823	--
Model Comparison				
Tuckler-Lewis index (TLI)	0.887	0.917	0.918	--
Normed fit index (NFI)	0.771	0.796	0.797	--
Comparative fit index (CFI)	0.894	0.923	0.924	--
Model Parsimony				
Parsimony goodness-of-fit index (PGFI)	0.706	0.722	0.721	--
Parsimony comparative fit index (PCFI)	0.84	0.862	0.861	--
Parsimony normed fit index (PNFI)	0.724	0.743	0.743	--

Table 6.5 Standardised Estimates for the Direct-effects, Fully Mediated, and Overall Models of the Motivation and Performance Structural Equation Model

Causal Path	Direct Effects Model		Fully Mediated Model		Overall Model	
	B	p	B	p	B	p
MPAS → MOT	0	--	3.745	0.134	0.389	0.036
MPAS → IP	0.590	0.000	0	--	0.294	0.005
MPAS → OP	0.751	0.000	0	--	0.552	0.000
MOT → IP	0	--	0.993	0.000	0.362	0.012
MOT → CTP	0	--	0.682	0.000	0.520	0.000
CTP → IP	0	--	0.249	0.101	0.326	0.004
IP → OP	0	--	1.23	0.000	0.306	0.039
OP → MOT	0	--	-4.41	0.186	0.224	0.310

Legend: MPAS ≡ Motivation and Performance Antecedents; OP ≡ Organisational Performance; CTP ≡ Capacity to Perform; MOT ≡ Motivation; IP ≡ Individual Performance; B ≡ regression weight; p ≡ probability value.

6.5 Summary

This Chapter discussed in detail the analysis of the hypothesised Structural Equation Model of Motivation and Performance. First, it illustrated how the proposed Structural Equation Model of Motivation and Performance was developed and gave a full description of the model. The Structural Equation Model of Motivation and Performance, as presented in figure 6.1, shows the causal relationships among the independent construct Motivation and Performance Antecedents and the dependent constructs Motivation, Capacity to Perform, Individual Performance and Organisational Performance. Second, the Structural Equation Model of Motivation and Performance was assessed and analysed using the SEM approach with the help of the AMOS 4.0 programme.

Third, the proposed hypotheses were tested through the analysis of the direct and indirect impact of the independent construct on the dependent constructs.

Using the maximum likelihood estimation method, the Structural Equation Model of Motivation and Performance was analysed based on the modified measurement models discussed in Chapter 5. The Structural Equation Model of Motivation and Performance is shown in figure 6.1. The structural and measurement components of the Motivation and Performance Structural Equation Model, along with the standardised coefficients and fit indexes, are shown in figure 6.3. Initial testing of the model shown in figure 6.3 resulted in seven significant paths supporting the hypotheses H1-H7, and one insignificant path suggesting a lack of support for hypothesis H8, namely, that organisational performance has insignificant influence on employee motivation. Further investigation of the model, using nested models at one time and aggregated first-order variables at another time, resulted in a significant path from Organisational Performance to Motivation, hence supporting the underlying theory for H8. Analyses of the indirect effect provided support for hypotheses 9 and 10 and showed that the variable Motivation mediates the relationship between the independent variable Motivation and Performance Antecedents and the dependent variables Individual Performance and Organisational Performance in a complicated manner through more than one variable that combine serially and sometimes in parallel.

In checking for any competing model to the hypothesised model shown in figure 6.3, the nested models approach was used and the results support that the hypothesised model represented the best model among all nested models. The goodness-of-fit indexes presented in table 6.1 indicate that the hypothesised model shown in figures 6.1 and 6.3 fit the sample data well demonstrating a good support to the hypothesised structural equation model and the underlying theory.

CHAPTER 7 DISCUSSIONS

7.1 Introduction

The purpose of this chapter is to discuss the research findings. First, an overview of the research questions and research objectives and how the research objectives were achieved is presented in section 7.2. Then, research findings corresponding to each research objective are discussed in section 7.3. Finally, in section 7.4, the proposed model of motivation and performance is explained and elaborated as to how it should be understood and considered by organisations.

7.2 Overview of Research Objectives and their Achievements

The main objective of this study was to develop and test the motivation and performance model, which links interactively the five constructs: Motivation and Performance Antecedents, Motivation, Capacity to Perform, Individual Performance, and Organisational Performance. The study aimed to examine these constructs and the interactive causal relationships between them. The relationships between the constructs were all examined together, rather than in isolation, due to the interactive nature between them. Studying any relationship between two constructs in isolation without considering the other constructs can lead to incomplete, weak findings. The main objective was achieved through articulating specific research questions and then translating these research questions into specific research objectives, which allow the use of appropriate research methodologies and methods. At the expense of reiteration, the research questions and research objectives are mentioned again here, and then an overview of how the research questions and objectives were answered and met, respectively, is presented.

This study focused on a number of questions, which are articulated as follows:

1. What are the fundamental motivation and performance factors within an organisation?

2. What are the antecedents and consequences of employee motivation?

3. What are the constructs of each fundamental motivation and performance factor that drive the human motivation and performance in the workplace?

4. What relationship is there among the fundamental motivation and performance factors, employee motivation, individual performance, and organisational performance?

5. How do organisations become performance improvement oriented?

Most of the above research questions could not be answered directly because in order to answer each question, more than one research methodology and method are required. For example, to answer research question no. 2 "What are the antecedents and consequences of employee motivation?", both qualitative and quantitative research methodologies are required. First, the antecedents and consequences of motivation need to be synthesised and developed based on theoretical background and empirical findings from the literature. This requires an exploratory research approach, which is a qualitative research methodology. Second, in order to test the causal relationships between antecedents of motivation variables, human motivation variable, and consequences of motivation variables, data need to be collected and analysed using some statistical methods. This requires the use of some quantitative methodology and method. Therefore, to answer the above five research questions, they were translated into

specific research objectives, which were worded in such a way to allow the use of appropriate research methodologies and methods in order to answer them. The research questions and the main research objective were answered and met, respectively, by:

1. Providing an in-depth study and literature review of Total Quality Management (TQM).
    i. Explaining the evolution of TQM.
    ii. Exploring different views and critiques of TQM.
    iii. Exploring the deficiencies and limitations of TQM.
    iv. Identifying the human elements of TQM.

2. Providing an in-depth study and literature review of Human Performance Technology (HPT).
    i. Explaining the evolution of HPT.
    ii. Exploring performance improvement models developed by some of HPT's key proponents.
    iii. Explaining how performance measurement can be utilised to improve organisational performance.

3. Providing a critical review of the Work Motivation field.
    i. Explaining and discussing the traditional theories of motivation.
    ii. Highlighting recent thoughts in the motivation literature.
    iii. Synthesising different motivation factors from different theories.

4. Identifying and synthesising the key elements/factors that relate antecedents of motivation and performance to human and organisational performance through the mediation of human motivation.

i. Identifying the key elements that act as antecedents and consequences of human motivation and performance, based on literature from TQM, HPT and work motivation.
ii. Characterising the identified antecedents and consequences of human motivation and performance using TQM frameworks, HPT models, and motivation theories.
iii. Explaining how the antecedents of human motivation and performance influence human performance and organisational performance through the mediation of human motivation.

5. Developing a conceptual motivation and performance model based on the literature review.
    i. Identifying fundamental motivation and performance factors that drive human motivation and performance in the organisation.
    ii. Identifying how these factors relate to employee motivation, individual performance, and organisational performance.
    iii. Explaining how the model should be implemented.

6. Developing a structured questionnaire (measuring instrument) to measure motivation and performance factors, employee motivation, capacity to perform, individual performance, and organisational performance.
    i. Developing items for each latent construct in the conceptual model.
    ii. Assessing the validity and reliability of the measuring instrument.
    iii. Applying confirmatory factor analysis (CFA) to the latent constructs of the conceptual model using questionnaire items.

7. Fitting the theoretical model to empirical data in order to permit statistical inferences from the hypotheses.
    i. Identifying a good fitting model using structural equation modelling (SEM).

ii. Testing the developed hypotheses.

iii. Discussing the hypotheses and their implications.

The above seven objectives and how they were achieved are discussed below.

The discussion on research design in chapter 4 concluded that a combination of both qualitative and quantitative research methodologies is needed in this study in order to answer the research questions and achieve the research objectives. That was important because the research problem of this study involved identification and description of variables and investigation of their cause and effect relationship. The research methodology employed by this study is fully explained in chapter 4.

Research questions no. 1 and 2 and research objectives no. 1, 2, 3, and 4 were answered and met, respectively, through conducting an extensive literature review on total quality management (TQM), human performance technology (HPT) and work motivation. This was presented in chapter 2 of this thesis. By critically examining literature on TQM, HPT, and work motivation, 12 key elements that relate to human motivation and performance were identified and synthesised. These elements were grouped into eight independent factors and four dependent factors. The eight independent factors, grouped into a major construct named as "Motivation and Performance Antecedents", are: Work Environment, Relations with Manager, Leadership of Top Management, Resources, Clarity of Processes, Financial Benefits, Non-financial Benefits, and External Perception and Identity. These eight factors are seen to impact other four dependent factors, which are: employee Motivation, Capacity to Perform, Individual Performance, and Organisational Performance.

The 12 constructs (8 independent and 4 dependent constructs) were developed and operationalised in chapter 3, in an attempt to answer research question no. 3 and meet research objective no. 5. Based on theoretical background and empirical findings from the literature, the causal relationships between the major independent construct "Motivation and Performance Antecedents" and the four dependent constructs "Motivation, Capacity to Perform, Individual Performance, and Organisational Performance" were examined. This resulted in proposing eight hypotheses that relate these five constructs together. The eight hypotheses derived from the literature were contractedly combined together to postulate a conceptual framework of motivation and performance using causal paths. The conceptual causal framework is explained and elaborated in section 7.4 of this chapter.

In order to test the hypotheses and conceptual framework developed by the study, data needed to be collected and analysed. The study utilised the structured questionnaire as the data collection method in order to answer research question no. 3 and achieve research objective no. 6. The questionnaire items for the constructs under study were developed in chapter 4 based on (1) the development of constructs presented in chapter 3, (2) the use of available scales from the literature summarised in chapter 4, and (3) consultation with organisational behaviour academicians and practitioners. The whole questionnaire is presented in appendix E. The reliability results for the questionnaire constructs are presented in chapter 4 and appendix G.

In order to test the hypothesised causal model and developed hypotheses, the structural equation modelling (SEM) approach was employed in order to achieve research objective no. 7. Chapter 5 examined and tested the measurement models for the five constructs specified in the hypothesised structural equation model of motivation and performance. The confirmatory factor analysis (CFA)

approach was used to develop the five measurement models using the AMOS 4.0 programme. These five measurement models (Motivation and Performance Antecedents, Motivation, Capacity to Perform, Individual Performance, and Organisational Performance) were developed to ensure the validity and reliability of the constructs used in the structural equation model before pursuing any testing of the whole structural equation model. The developed measurement models were presented in chapter 5. Chapter 6 analysed the structural equation model and tested and discussed the developed hypotheses. The hypotheses tested probe the causal links among the variables: Motivation and Performance Antecedents, Motivation, Capacity to Perform, Individual Performance, and Organisational Performance.

7.3 Discussion of Research Findings

The purpose of this section is to discuss the research findings as a result of conducting both qualitative and quantitative methodologies and methods in an attempt to address the research questions and objectives. An overview of these findings was presented in the previous section. In this section, first, the research findings as to the operationalisation of the research constructs are discussed. Then, the empirical findings that relate to the relationships between the constructs in the proposed model of motivation and performance are discussed and elaborated. The research hypotheses are discussed with reference to the literature as to how the hypotheses were supported.

7.3.1 Operationalisation of the Research Constructs

As mentioned in the previous section, this study operationalised and developed five main constructs that relate to human motivation and performance in the workplace. Theses five constructs were operationalised and developed in chapter

3 based on theoretical background and empirical findings from the literature. These five constructs are: Motivation, Capacity to Perform, Individual Performance, Organisational Performance, and Motivation and Performance Antecedents. The items of these constructs are presented in chapter 4. It was aimed to develop these constructs in such a way that they are reliable and valid in order to allow proper and acceptable analyses of the hypothesised structural equation model and associated hypotheses. To ensure the reliability and validity of the research constructs, the confirmatory factor analysis (CFA) approach, explained in chapter 4, was used to develop well-fitting measurement models for the five constructs. The AMOS 4.0 programme was used to run the measurement models, and the results of the CFA are presented and discussed in chapter 5. The goodness-of-fit criteria against which the measurement models were checked for reliability and validity were explained in detail in section 4.5 in chapter 4.

To ensure the reliability of the constructs in the measuring instrument, the measurement error approach was used in the confirmatory factor analysis. The measurement error describes the part of an observed measure that is not measured by the corresponding latent variable. Large measurement errors indicate one of three possibilities: unreliable observed measure, the observed measure is measuring some another construct, the observed measure is cross loading on more than one factor (Tan, 2001). Items with high measurement errors were deleted from the analysis to ensure reliability of the constructs (see chapter 5). The indices for the goodness-of-fit criteria for the developed measurement models for the five constructs are presented in table 7.1 (summarised from the results tables for the developed measurement models presented in chapter 5).

Also, the reliability Cronbach's alpha coefficient (α) was calculated for each construct used in the final structural equation model. As shown in Table 7.2 (extracted from appendix G), the α values for all the constructs are above 0.65, which is regarded as an acceptable minimum level for further analysis (Nunnally; 1978). The only exception is the Individual Performance construct, which was found to be reliable using the CFA approach (see chapter 5 for analysis of all the constructs).

Table 7.1 Comparison of Goodness-of-Fit Indexes for the Research Constructs

Goodness-of-Fit Criteria	Value of Goodness-of-Fit Index				
	Construct 1	Construct 2	Construct 3	Construct 4	Construct 5
Model Fit					
Chi-square (χ^2)	0.149	2.177	0.355	1.182	543.293
Degrees of freedom (df)	1	2	1	1	398
Normed Chi-square (NC=χ^2/df)	0.149	1.089	0.355	0.277	1.365
Probability value (p)	0.700	0.337	0.552	1.182	0.000
Goodness-of-fit (GFI)	1.000	0.995	0.998	0.995	0.864
Adjusted GFI (AGFI)	0.997	0.975	0.995	0.984	0.841
Root-mean-square residual (RMR)	0.006	0.023	0.029	0.075	0.138
Root-mean-square error of approximation (RMSEA)	0.000	0.02	0.000	0.029	0.041
Probability of close fit (PCLOSE)	0.768	0.511	0.647	0.396	0.960
Model Comparison					
Tuckler-Lewis index (TLI)	1.025	0.996	1.018	0.998	0.959
Normed fit index (NFI)	0.999	0.985	0.991	0.988	0.873
Comparative fit index (CFI)	1.000	0.999	1.000	0.998	0.962
Model Parsimony					
Parsimony goodness-of-fit index (PGFI)	0.167	0.199	0.333	0.332	0.739
Parsimony comparative fit index (PCFI)	0.333	0.333	1.000	0.998	0.880
Parsimony normed fit index (PNFI)	0.333	0.328	0.991	0.988	0.799

Legend: Construct 1 ≡ Motivation; Construct 2 ≡ Capacity to Perform; Construct 3 ≡ Individual Performance; Construct 4 ≡ Organisational Performance; Construct 5 ≡ Motivation and Performance Antecedents.

Table 7.2 Cronbach Alpha Coefficients of Research Constructs

Construct	No. of Items	Cronbach alpha coefficient (α)
Organisational performance	**2**	**0.7553**
Individual performance	**2**	**0.5514**
Motivation	**3**	**0.6703**
Capacity to Perform	**4**	**0.6610**
Motivation and Performance Antecedents	**30**	**0.9429**
Work Environment	8	0.8103
Relations with Manager	6	0.9330
Leadership of Top Management	6	0.8959
Clarity of Processes	2	0.8355
Resources	2	0.8255
Financial Benefits	2	0.7368
External perception and identity	4	0.8943

The reliability of each of the five research constructs and how it supported the construct operationalisation is discussed below.

7.3.1.1 The Motivation Construct

The construct Motivation was operationalised by this study in terms of activation, direction, and maintenance of behaviour that lead to specific outcomes. When the items of the Motivation construct were subjected to confirmatory factor analysis, the measurement model developed for this construct yielded the following goodness-of-fit statistics: an overall $\chi^{2}_{(1)}$ value of 0.149 (with a χ^2/df ratio of $0.149 \leq 2.000$ and a p value of $0.700 \geq 0.050$), a GFI of 1.000 (≥ 0.900), a CFI of 1.000 (≥ 0.900), and an RMSEA of 0.000 (≤ 0.060). All these indexes are within the acceptable levels and therefore suggest that the model is fitting the sample data very well. Hence, these results indicate that the developed Motivation construct is reliable.

So the results support the operationalisation of the Motivation construct. The operationalisation of the Motivation construct in terms of activation, direction,

and maintenance of behaviour received support from the literature. Activation, direction, and maintenance of behaviour are considered as the critical elements of motivation (Kast and Rosenzweig, 1985; Blau, 1993; Ambrose and Kulik, 1999). Human motivation is concerned with what drives individuals to achieve some goals in order to satisfy some needs or expectations (Kast and Rosenzweig, 1985).

7.3.1.2 The Capacity to Perform Construct

The construct Capacity to Perform was operationalised by this study in terms of self-efficacy, cognitive ability, and knowledge and skills. When the items of the Capacity to Perform construct were subjected to confirmatory factor analysis, the measurement model developed for this construct yielded the following goodness-of-fit statistics: an overall $\chi^2_{(2)}$ value of 2.177 (with a χ^2/df ratio of $1.089 \leq 2.000$ and a p value of $0.337 \geq 0.050$), a GFI of 0.995 (≥ 0.900), a CFI of 0.999 (≥ 0.900), and an RMSEA of 0.020 (≤ 0.060). All these indexes are within the acceptable levels and therefore suggest that the model is fitting the sample data very well. Hence, these results indicate that the developed Capacity to Perform construct is reliable.

So the results support the operationalisation of the Capacity to Perform construct. The operationalisation of the Capacity to Perform construct in terms of self-efficacy, cognitive ability, and knowledge and skills received support from the literature. Self-efficacy is considered as the emotional capacity that influences individual capacity to perform (Rummler and Brache, 1990). Intelligence plays important role in the determination of employee ability to perform and hence in his/her work performance (Waldman, 1994; Adams, 1963). It is very important that employees are mentally able to perform (Gilbert, 1978; Rummler and Brache, 1990). Knowledge and skills is considered as a key person factor that

influences employee capacity to perform in the workplace (Gilbert, 1978; Deming, 1986; Juran, 1989).

7.3.1.3 The Individual Performance Construct

The construct Individual Performance was operationalised by this study in terms of individual accomplishments and job commitment. When the items of the Individual Performance construct were subjected to confirmatory factor analysis, the measurement model developed for this construct yielded the following goodness-of-fit statistics: an overall $\chi^2_{(1)}$ value of 0.355 (with a χ^2/df ratio of $0.355 \leq 2.000$ and a p value of $0.552 \geq 0.050$), a GFI of 0.998 (≥ 0.900), a CFI of 1.000 (≥ 0.900), and an RMSEA of 0.000 (≤ 0.060). All these indexes are within the acceptable levels and therefore suggest that the model is fitting the sample data very well. Hence, these results indicate that the developed Individual Performance construct is reliable.

So the results support the operationalisation of the Individual Performance construct. The operationalisation of the Individual Performance construct in terms of individual accomplishments and job commitment received support from the literature. Individual performance is addressed in terms of accomplishments against job goals and outputs that are set according to performance standards (Rummler and Brache, 1995; Gilbert, 1978). Commitment of employees to achieve the set goals and outputs is considered to be critical (Locke, 1968). To achieve quality performance, all organisational members should be committed (Deming, 1986; Juran, 1974; Crosby, 1979).

7.3.1.4 The Organisational Performance Construct

The construct Organisational Performance was operationalised by this study in terms of achievement of organisational goals and level of business results. When the items of the Organisational Performance construct were subjected to confirmatory factor analysis, the measurement model developed for this construct yielded the following goodness-of-fit statistics: an overall $\chi^2_{(1)}$ value of 1.182 (with a χ^2/df ratio of $1.182 \leq 2.000$ and a p value of $0.277 \geq 0.050$), a GFI of 0.995 (≥ 0.900), a CFI of 0.998 (≥ 0.900), and an RMSEA of 0.029 (≤ 0.060). All these indexes are within the acceptable levels and therefore suggest that the model is fitting the sample data very well. Hence, these results indicate that the developed Organisational Performance construct is reliable.

So the results support the operationalisation of the Organisational Performance construct. The operationalisation of the Organisational Performance construct in terms of achievement of organisational goals and level of business results received support from the literature. Rummler and Brache (1995) address organisational performance in terms of organisational goals. The Baldrige National Quality Program (2003) criteria for business results include customer-focused results, product and service results, and financial and market results. Reed *et al.* (1996) address firm performance, in the form of increased revenues and reduced costs.

7.3.1.5 The Motivation and Performance Antecedents Construct

The construct Motivation and Performance Antecedents was operationalised by this study in terms of eight factors: work environment, relations with manager, leadership of top management, resources, clarity of processes, financial benefits, non-financial benefits, and external perception and identity. Each of these eight factors was operationalised separately and dealt with as a first-order CFA factor

in chapter 5. The major construct Motivation and Performance Antecedents, which is operationalised in terms of these eight factors, was therefore dealt with as a second-order CFA measurement model.

When the items of the Motivation and Performance Antecedents construct were subjected to confirmatory factor analysis, the second-order measurement model developed for this construct yielded the following goodness-of-fit statistics: an overall $\chi^2_{(398)}$ value of 543.293, a χ^2/df ratio of 1.365, a GFI of 0.864, a CFI of 0.962, and an RMSEA of 0. 041. Although the GFI (0.864) suggests that the model is moderately fitting (slightly < 0.900); the χ^2/df ratio ($1.365 \leq 2.000$), the CFI ($0.962 \geq 0.900$), and the RMSEA value ($0.041 \leq 0.060$) indicate a well fitting of the model to the data. In fact, considering the complexity of the model, GFI value of 0.864 is not bad. All these indexes are within the acceptable levels and therefore suggest that the model is fitting the sample data very well. Hence, these results indicate that the developed Motivation and Performance Antecedents construct is reliable.

It was found from the analysis of the Motivation and Performance Antecedents measurement model, presented in chapter 5, that the first-order factor Non-financial Benefits loaded on the first-order factor Work Environment. This made sense because the two factors Non-financial Benefits and Work Environment are well integrated in the sense that an effective work environment should incorporate good non-financial benefits and working conditions to the employees (Maslow, 1954; Alderfer, 1972; Herzberg *et al.*, 1959; Adams, 1963). This leads to operationalising the Motivation and Performance Antecedents construct in terms of seven factors rather than eight factors (the factor Non-financial Benefits was excluded as it already loaded on the factor Work Environment).

So the results from the confirmatory factor analysis support the operationalisation of the Motivation and Performance Antecedents construct as a second-order factor that consists of seven first-order factors. The operationalisation of the Motivation and Performance Antecedents construct in terms of the seven factors (Work Environment, Relations with Manager, Leadership of Top Management, Resources, Clarity of Processes, Financial Benefits, and External Perception and Identity) received lot of support from the literature. The operationalisation of the seven factors from the literature is highlighted below.

The first factor **Work Environment** was operationalised in terms of person-organisation fit, relations with colleagues and teamwork, satisfaction with working conditions, and open communication. Sims and Keon (1997) see that a match between the person characteristics and the organisation can create an effective work environment. Maintaining good relations among colleagues and teamwork are considered to be key elements for an effective work environment (Holmstrom 1982; Dean and Bowen, 1994). Satisfaction with working conditions is important element in the workplace (Herzberg *et al.*, 1959). Morrow (1997) sees that open communication helps a lot in creating a good work environment.

The second factor **Relations with Manager** was operationalised in terms of trust, coaching, empowerment, and superior's feedback to his/her subordinates. Trust relationship between superior and subordinates is an important element in maintaining good relations between the manager and his/her subordinates (Herzberg *et al.*, 1959). Also, employees appreciate when their manager is able to guide and counsel them in their job (Deming, 1986; Waldman, 1994; Kondo, 1996) and give them the authority and empower them to do their job (Dean and Bowen, 1994; Waldman, 1994). At the same time employees like to receive

positive feedback from their managers (Gilbert, 1978; Harless, 1990; Skinner 1954).

The third factor **Leadership of Top Management** was operationalised in terms of involvement in decision-making, organisational orientation, and strategic planning. Involving employees in the decision-making process is a strong feature of leadership of top manager (McGregor, 1960; Likert, 1967; Oakland, 1995). Top leaders also need to focus on external challenges and attend to them (Thomas *et al.*, 1991; Pelham, 2000) through strategic planning (Griffin, 2000; Robinson and Pearce, 1988).

The fourth factor **Resources** was operationalised in terms of both physical and human resources. Juran and Gryna (1988) emphasise on providing the facilities and tools needed to conduct the planned activities. In addition to having the required tools and equipment, it is very important that the sufficient number of expertise personnel is available (Gilbert, 1978). The fifth factor **Clarity of Processes** was operationalised in terms of sufficiency and clarity of systems and standards. Clear systems and procedures make it easier for the employees to clearly understand work processes and perform their tasks in an efficient and effective way (Spitzer, 1999; Gilbert, 1978).

The sixth factor **Financial Benefits** was operationalised in terms of performance-based wages and monetary incentives. Pay is considered as one of the basic physiological needs that must be satisfied (Maslow, 1954; Alderfer, 1972; Herzberg *et al.*, 1959) and provided by the employer in a fair manner that is based on performance (Gilbert, 1978). Organisations need to design proper performance-based financial incentives for their employees (Murphy, 1985; Coughlan and Schmidt, 1985).

The seventh factor **External Perception and Identity** was operationalised in terms of corporate identity, external prestige, and corporate social responsibility. According to Thomas and Gioia (1991), a positive corporate identity and image can help in strengthening the identity of an organisation. This, in turn, makes the employees identify with their organisation (Ashforth and Mael, 1989; Tajfel, 1982). Employees identify with their organisations when they perceive that external people see their organisation as a prestigious one (Fisher and Wakefield, 1998) and a society caring one (Webster, 1975; Mohr *et al.*, 2001).

To sum up, the discussion in this section shows how the five constructs (Motivation, Capacity to Perform, Individual Performance, Organisational Performance, and Motivation and Performance Antecedents), developed from literature, were refined using a confirmatory factor analysis (CFA) approach and reliable measurement models for all the five constructs were developed. Also, it is shown how the results supported operationalisation of the constructs from the literature. The next section discusses the causal relationships between the five constructs and how the derived hypotheses are supported.

7.3.2 The Relationships between the constructs of the model

The hypotheses testing results, presented in chapter 6, suggest that there is a significant positive relationship between the five constructs of the hypothesised structural equation model of motivation and performance: Motivation and Performance Antecedents, Motivation, Capacity to Perform, Individual Performance, and Organisational Performance. As can be seen from figure 7.1, there are eight established causal paths between the five constructs. These eight causal paths relate to hypotheses 1 to 8 (H1-H8). The analyses of the eight causal relationships between the five constructs are discussed here.

7.3.2.1 Motivation and Performance Antecedents, Motivation, Individual Performance, and Organisational Performance Relationships

Motivation and performance antecedents in terms of effective work environment, relations with manager, leadership of top management, resources, clarity of processes, financial benefits, and external perception and identity were hypothesised to positively influence human motivation (H1), human performance (H2) and organisational performance (H3). These hypotheses are represented in the proposed structural equation model, shown in figure 7.1, by the following three causal paths: Motivation and Performance Antecedents → Motivation (H1), Motivation and Performance Antecedents → Individual Performance (H2), and Motivation and Performance Antecedents → Organisational Performance (H3).

The relationship between the Motivation and Performance Antecedents variable and the Motivation variable was found to be significantly positive with a relatively strong regression coefficient (B=0.39) that is significant at the 0.05 level (p=0.036); hence supporting H1. The relationship between the Motivation and Performance Antecedents variable and the Individual Performance variable was found to be significantly positive with a relatively moderate regression coefficient (B=0.29) that is significant at the 0.01 level (p=0.005); hence supporting H2. The relationship between the Motivation and Performance Antecedents variable and the Organisational Performance variable was found to be significantly positive with a relatively very strong regression coefficient (B=0.55) that is significant at the 0.001 level (p=0.000); hence supporting H3.

So, the results of the analysis discussed above reveal that the factors (work environment, relations with manager, leadership of top management, resources, clarity of processes, financial benefits, and external perception and identity), which were considered to act as antecedents to motivation and performance,

contribute significantly to the proposed model of motivation and performance. These seven factors are seen to have a great influence on employee motivation and performance. Our findings received lot of support from the literature. This is highlighted below.

The **Work Environment** factor was operationalised in terms of person-organisation fit (Sims and Keon, 1997), relations with colleagues and teamwork (Holmstrom 1982; Dean and Bowen, 1994), satisfaction with working conditions (Herzberg *et al.*, 1959; Anderson, 1984; Blegen, 1993), and open communication (Morrow, 1997). Person-organisation fit can lead to satisfaction, commitment, low intention to leave (Downey *et al.*, 1975; Posner *et al.*, 1985; Tziner, 1987), organisational homogeneity (B. Schneider, 1987), low turnover (B. Schneider, 1987), positive work attitudes (Dawis and Lofquist, 1984), task performance (Tziner, 1987), and career success (Bretz and Jude, 1994). Good relations with colleagues and teamwork result in a positive culture (Dean and Bowen, 1994), a high-performance, high-commitment work culture (Sherwood; 1988, 1989), inspiring greater quality consciousness among staff (Goh, 2000), and improved performance measures such as quality, quantity, timeliness, customer satisfaction, and work motivation (Mann, 2000; Jin, 1993). Good working conditions are seen to remove dissatisfaction (Hezberg *et al.*, 1959) and improve job satisfaction and performance (Maslow, 1954; Alderfer, 1972). Open communication assists employees in accomplishing their job duties (Giunipero and Vogt, 1997) and hence improve their job performance (O'Reilly and Roberts, 1977).

The **Relations with Manager** factor was operationalised in terms of trust relationship between superior and subordinates (Deming, 1986; Crosby, 1979; Herzberg *et al.*, 1959), superior's ability to guide and counsel his/her subordinates (Deming, 1986; Waldman, 1994; Kondo, 1996), superior's empowerment to his/her subordinates (Dean and Bowen, 1994; Waldman,

1994), and superior's feedback to his/her subordinates (Gilbert, 1978; Harless, 1990; Skinner 1954,1958, 1969). Trust is found to help in saving time and effort, creating a safe and secure environment for the members of any organisation, developing and maintaining an organisation's identity as a caring one (Hummels and Roosendaal, 2001), and facilitating cooperation (Mayer *et al.*, 1995; Smith *et al.*, 1995). Superior's ability to guide and counsel his/her subordinates (coaching) improves employee commitment, which in turn improves employee productivity and creativity (Frankel and Otazo, 1992). Empowerment is seen to provide employees with a feeling of being strong, a sense of ownership and control over their jobs (Bass, 1985; Kouzes and Posner, 1988), and to improve employee commitment and loyalty (Fulford and Enz, 1995; Niehoff *et al.*, 1990). A positive feedback is seen to have a significant impact on task performance (Harless, 1990; Alexander and Fred, 2003) and employee motivation (McCarthy and Garavan, 2001).

The **Leadership of Top Management** factor was operationalised in terms of involving employees in the decision-making process (McGregor, 1960; Likert, 1967; Oakland, 1995), organisational orientation (Thomas *et al.*, 1991; Pelham, 2000), and strategic planning (Griffin, 2000; Robinson and Pearce, 1988). Involvement of employees in the decision-making process can help in operationalising the vision for change and hence enables and motivates the staff to share in the implementation of change through the guidance of leadership (Hugman and Hadley, 1993). Organisational orientation in terms of fast response to negative customer satisfaction information, strategies based on creating value for customers, immediate response to competitive challenges, and fast detection of changes in customer product preferences is found to have a great impact on organisational performance (Thomas *et al.*, 1991). Strategic planning is found to positively influence firm performance (Miller and Cardinal, 1994). Robinson and Pearce (1988) found that organisations with strategic orientations focusing on

product innovation, or those focusing on efficiency and differentiation patterns of strategic behaviour showed significantly higher levels of performance.

The **Resources** factor was operationalised in terms of the assets and capabilities an organisation controls or seeks to control, and it covers both physical and human resources. Brethower (1995) considers resources as an important input to any work process in the processing system of an organisation. Juran and Gryna (1988) emphasise on providing the facilities and tools needed to conduct the planned activities. According to Gilbert (1978), resources are one of the key system factors that affect employee performance in the workplace.

The **Clarity of Processes** factor was operationalised in terms of sufficiency and clarity of systems and standards used in the workplace (Rummler and Brache, 1990; Locke, 1968; Juran, 1986; Oakland, 1995; Kondo, 1996; Tosti and Jackson, 1996; Harless, 1990; Herzberg *et al.*, 1959). Clear systems and procedures make it easier for the employees to clearly understand work processes and perform their tasks in an efficient and effective way, and for the managers to excel leadership and evaluate their employees' performance (Shrock and Geis, 1999; Spitzer, 1999; Gilbert, 1978). Standards-based appraisals are seen to be effective ways to support and document decisions regarding employees' performance appraisals and promotions (Eyres, 1999).

The **Financial Benefits** factor was operationalised in terms of performance-based wages and monetary incentives (Waldman, 1994; Griffin, 2000; Thiagarajan *et al.*, 1999; Lawler, 1987; Beer, 1993; Antonioni, 1994; Cumming, 1994). Pay is considered as one of the basic physiological needs that must be satisfied (Maslow, 1954; Alderfer, 1972; Herzberg *et al.*, 1959). Performance-based financial incentives are found to have a positive impact on sales growth and shareholder returns (Murphy, 1985; Coughlan and Schmidt, 1985).

The **External Perception and Identity** factor was operationalised in terms of corporate identity (Tosti and Jackson, 1989), external prestige (Oakland, 1995), and corporate social responsibility (Baldrige National Quality Program, 2003; Kaufman, 1994). A positive external perception and identity encourages employees to identify with their organisation and be more loyal to it (Tosti and Jackson, 1989; Kaufman, 1994; Baldrige National Quality Program, 2003). A positive corporate identity and image can help in strengthening the identity of an organisation (Dutton and Dukerich, 1991; Thomas and Gioia, 1991) and in turn the identification of employees to their organisation (Ashforth and Mael, 1989; Tajfel, 1982). It can motivate strategic decisions and actions (Kiriakidou and Millward, 2000). Perceived external prestige is found to influence organisational identification and enhance self-esteem (Bhattacharya *et al.*, 1995; Fisher and Wakefield, 1998). Corporate social responsibility is considered as an important factor for the socially responsible consumer in order to choose the organisation he/she should deal with (Webster, 1975; Mohr *et al.*; 2001).

7.3.2.2 Motivation and Individual Performance Relationship

Hypothesis 4 predicts that if an employee is motivated in his/her workplace then his/her individual performance will be improved. The relationship between the Motivation variable and the Individual Performance variable was found to be significantly positive with a relatively strong regression coefficient (B=0.36) that is significant at the 0.05 level (p=0.012); hence supporting H4.

Thus, the results of the analysis presented above reveal that the causal relationship between the variable Motivation and the variable Individual Performance contributes significantly to the proposed model of motivation and performance. Motivating employees in their job is seen to have a great influence on their individual performance in the workplace. Our findings received some

support from the literature. Blau (1993) investigated the extent to which the components of motivation account for individual job performance. His results indicated that effort level and direction of effort are each important in explaining individual performance.

7.3.2.3 Motivation and Capacity to Perform Relationship

Hypothesis 5 suggests that if an employee is motivated in his/her workplace then his/her capacity to perform will be improved. The relationship between the Motivation variable and the Capacity to Perform variable was found to be significantly positive with a relatively very strong regression coefficient (B=0.52) that is significant at the 0.001 level (p=0.000); hence supporting H5.

Hence, the results of the analysis presented above reveal that the causal relationship between the variable Motivation and the variable Capacity to Perform contributes significantly to the proposed model of motivation and performance. Motivating employees in their job is seen to have a great influence on their capacity to perform in the workplace. Our findings received some support from the literature. This supports the *incremental theory of ability* which conceptualises ability as malleable, and constantly developing in an incremental manner. If employees are motivated in their workplace, then they will be inclined to improve their emotional, mental, and physical capacity to perform their tasks (Dweck *et al.*, 1995; Dweck and Leggett, 1988). For example, employees who receive positive performance feedback from their managers become motivated to improve their performance through improving their capacity to perform their job by developing their capabilities (Maurer *et al.*, 2002).

7.3.2.4 Capacity to Perform and Individual Performance Relationship

Hypothesis 6 predicts that if an employee's capacity to perform is high then his/her individual performance will be high also. The relationship between the Capacity to Perform variable and the Individual Performance variable was found to be significantly positive with a relatively strong regression coefficient (B=0.33) that is significant at the 0.005 level (p=0.004); hence supporting H6.

Therefore, the results of the analysis presented above reveal that the causal relationship between the variable Capacity to Perform and the variable Individual Performance contributes significantly to the proposed model of motivation and performance. If employees are seen to have a high emotional, mental, and physical capacity to perform, then this will have a great influence on their individual performance in the workplace. Our findings received lot of support from the literature. Capacity to Perform was operationalised in terms of self-efficacy (Bandura, 1997; Gist and Mitchell, 1992), cognitive ability (Hunter and Hunter, 1984; Schmitt *et al.*, 1997), and knowledge and skills (Deming, 1986; Juran, 1989; Hunter, 1986).

It has been shown that self-efficacy is a key predictor of persistence to perform a behaviour or pursue a task (Sadri and Robertson, 1993). An employee's self-esteem and confidence in his/her ability to do the work is found to positively affect his/her performance (Bandura, 1997). Cognitive ability is found by many researchers as a critical useful predictor and correlate of job performance in most jobs (e.g., Hunter and Hunter, 1984; Ree *et al.*, 1994; Schmitt *et al.*, 1997; Bobko *et al.*, 1999; DuBois *et al.*, 1993). Knowledge and skills factor is one of the important factors that affect job performance (Gilbert, 1978; Rummler and Brache, 1995; Rosenberg *et al.*, 1999; Harless, 1970).

7.3.2.5 Individual Performance and Organisational Performance Relationship

Hypothesis 7 suggests that improved individual performance of the employee positively affects organisational performance. The relationship between the Individual Performance variable and the Organisational Performance variable was found to be significantly positive with a relatively strong regression coefficient (B=0.31) that is significant at the 0.05 level (p=0.039); hence supporting H7.

Accordingly, the results of the analysis presented above reveal that the causal relationship between the variable Individual Performance and the variable Organisational Performance contributes significantly to the proposed model of motivation and performance. An organisation that has its employees performing high is seen as one that has high productivity and output results. Our findings received lot of support from the literature. Individual Performance was operationalised in terms of individual accomplishments (Rummler and Brache, 1995; Gilbert, 1978; Vroom, 1964; Locke, 1968) and job commitment (Vroom, 1964; Locke, 1968; Ajzen and Fishbein, 1975). Individuals within the organisation who carry out their activities in a committed way contribute to the performance of their organisation as a whole (Langdon, 1999), especially when the performance of individuals and that of the organisation are aligned together (Rummler and Brache, 1990). Individual performance is found to be a key factor that positively influences the performance of the organisation (Gilbert, 1978; Brethower, 1982; Harless, 1990; Kaufman, 1992).

7.3.2.6 Organisational Performance and Motivation Relationship

Hypothesis 8 predicts that organisational performance positively influences employees' motivation in the workplace. The relationship between the

Organisational Performance variable and the Motivation variable was found initially to be significantly weak with a relatively weak regression coefficient (B=0.22) and insignificant probability level (p=0.310). This causal link was further investigated and analysed using two approaches; in the first approach, the latent variables were converted into observed variable through aggregating the observed measures of each latent variable, and in the second approach the structural equation model was analysed excluding the construct Motivation and Performance Antecedents. The results of analysis from both approaches (see chapter 6) revealed relatively moderate regression weights (B=0.34 in the first approach, and B=0.18 in the second approach) that are significant at the 0.05 level (p=0.044 in the first approach, and p=0.029 in the second approach); hence supporting H8.

So, the results of the analysis presented above reveal that the causal relationship between the variable Organisational Performance and the variable Motivation contributes significantly to the proposed model of motivation and performance. When the output results of an organisation are high then communicating these results to its employees in a positive way will have a positive direct impact on their motivation. Our findings received some support from the literature. When employees become aware of the organisational outputs achieved as a result of their efforts, they become more motivated and hence try to increase their capacity to perform their tasks again and again (Littlejohn, 2001).

7.4 Proposed Model of Motivation and Performance

Organisational behaviour research has used traditional motivational theories as general frameworks to study specific measures of employee behaviours such as work environment, task performance, or organisational performance without explicitly measuring "motivation". The concern is that researchers are measuring

only motivation, outcome variables such as performance, or antecedent variables such as recognition without studying the link between these constructs. Moreover, the components of most definitions of motivation (activation, direction, and maintenance of behaviour) are not explicitly examined (Ambrose and Kulik, 1999). As far as the researcher is concerned, this study is the first of its kind that examines the linkages between the five measures: the factors that are considered as antecedents to motivation and performance, human motivation, human capacity to perform, human performance and organisational performance. Motivating employees towards carrying out activities that lead to valued results in the workplace is a complex process. To develop and implement an appropriate framework that motivates employees in their workplace is a very challenging task for organisations. This study aimed to develop such a framework. This section presents the proposed model of motivation and performance and explains how the model works.

This study proposed eight direct relationships (causal links) between the five measures mentioned above, and in turn derived eight hypotheses that represent the eight causal links. Theses eight hypotheses, derived from the literature, were contractedly combined together to postulate a model using causal paths as shown in figure 7.1. The model and its attendant hypotheses were empirically tested for its veracity. The results from both the qualitative and quantitative researches discussed in the previous sections provide empirical evidence that support the proposed relationships between the five measures mentioned above, and hence support the veracity of the proposed model of motivation and performance.

The model shown in figure 7.1 consists of five constructs: Motivation and Performance Antecedents, Motivation, Capacity to Perform, Individual Performance, and Organisational Performance. The first construct "Motivation and Performance Antecedents" is the major construct which represent the

elements that act as antecedents to human motivation and performance in the workplace. The Motivation and Performance Antecedents construct consists of seven elements: Work Environment, Relations with Manager, Leadership of Top Management, Resources, Clarity of Processes, Financial Benefits, and External Perception and Identity. In brief, these seven elements are seen to positively influence human motivation, human performance, and organisational performance. Human motivation has a direct impact on human performance and human capacity to perform. Employee capacity to perform positively affects his or her individual performance, which in turn affects the organisational performance. Organisational performance is seen to positively influence human motivation.

The eight causal links in the model show how the five constructs relate to each other both directly and indirectly. First, the direct links are spelled out. Three causal paths – Motivation and Performance Antecedents → Motivation (H1), Motivation and Performance Antecedents → Individual Performance (H2), and Motivation and Performance Antecedents → Organisational Performance (H3) – indicate that the existence of the seven factors (Work Environment, Relations with Manager, Leadership of Top Management, Resources, Clarity of Processes, Financial Benefits, and External Perception and Identity), conceptualised as Motivation and Performance Antecedents, have positive direct impact on human motivation, individual task performance, and organisational performance. The causal paths Motivation → Individual Performance (H4) and Motivation → Capacity to Perform (H5) indicate that when employees are motivated in their workplace then this will have a positive direct impact on their individual task performance and their capacity to perform their tasks. The causal path Capacity to Perform → Individual Performance (H6) shows that when an employee's capacity to perform is high then his or her individual task performance will be also high. The causal path Individual Performance → Organisational

Performance (H7) indicates that employees' individual performance has a direct positive impact on the performance of the whole organisation. Finally, the causal path Organisational Performance → Motivation (H8) shows that the output results of an organisation has a positive direct impact on the motivation of its employees. These 8 direct relationships were discussed in detail in the previous section.

It is also important to spell out the indirect causal links in the proposed model in order to understand the act of motivation as a mediator to human and organisational performance.

The construct Motivation and Performance Antecedents influences the construct Individual Performance indirectly through mainly two routes. In the first route, the construct Motivation and Performance Antecedents influences the construct Individual Performance indirectly through the following two causal paths: Motivation and Performance Antecedents → Motivation (H1) and Motivation → Individual Performance (H4). This is clear from figure 7.1. These two paths (H1 + H4) indicate that the construct Motivation and Performance Antecedents influences the construct Individual Performance indirectly through the mediation effect of the construct Motivation. This act of motivation as a mediator to human performance is an important suggestion by the proposed model. In the second route (see figure 7.1), the construct Motivation and Performance Antecedents influences the construct Individual Performance indirectly through the following three paths: Motivation and Performance Antecedents → Motivation (H1), Motivation → Capacity to Perform (H5), and Capacity to Perform → Individual Performance (H6). So, these three paths (H1 + H5 + H7) indicate that the construct Motivation and Performance Antecedents influences the construct Individual Performance indirectly through the mediation effect of the two constructs Motivation and Capacity to Perform in a serial combination.

The indirect causal links that relate to the act of motivation as a mediator to organisational performance are spelled out here. From figure 7.1, one can note that the construct Motivation mediates the construct Organisational Performance through two routes. In the first route, the construct Motivation and Performance Antecedents influences the construct Organisational Performance indirectly through the following three paths: Motivation and Performance Antecedents → Motivation (H1), Motivation → Individual Performance (H4), and Individual Performance → Organisational Performance (H7). These three paths (H1 + H4 + H7) indicate that the serial combination of Motivation and Individual Performance act as a mediator between the independent variable Motivation and Performance Antecedents and the dependent variable Organisational Performance. In the second route, the construct Motivation and Performance Antecedents influences the construct Organisational Performance indirectly through the following four paths: Motivation and Performance Antecedents → Motivation (H1), Motivation → Capacity to Perform (H5), Capacity to Perform → Individual Performance (H6), and Individual Performance → Organisational Performance (H7). These four paths (H1 + H5 + H6 + H7) indicate that the serial combination of Motivation, Capacity to Perform, and Individual Performance act as a mediator between the independent variable Motivation and Performance Antecedents and the dependent variable Organisational Performance.

The proposed framework of motivation and performance suggests that organisations need to pay a great deal of attention to a number of issues in order to create a high performing environment in their workplace. First, organisations should manage the seven factors (Work Environment, Relations with Manager, Leadership of Top Management, Resources, Clarity of Processes, Financial Benefits, and External Perception and Identity) in an appropriate manner. Managers should bear in mind that the way each of these factors is managed will

have some impact on employees' motivation, task performance and organisational performance. This implies that during the design stage of these seven factors, managers need to incorporate in each factor the proper features and characteristics that relate to the required outcomes, which are, in our case, employees' motivation, employees' capacity to perform their job, human performance, and organisational performance. For example, the factor Financial Benefits can be handled in a way that financial incentives are designed to be based on employee performance. The design of financial benefits should incorporate also aspects that motivate employees to exert more efforts towards accomplishing better results in their workplace. So, the proposed model of motivation and performance suggests that factors that deal with the person, the organisation, and the society should be considered and managed in a way that leads to human and organisational performance directly, and at the same time leads to human and organisational performance indirectly through the act of human motivation.

When managers think of motivating their employees in the workplace, they should focus on the elemental aspects of motivation, which are the aspects that deal with activating, directing, and maintaining employees behaviour towards business results (Ambrose and Kulik, 1999). By understanding these aspects, organisations can be in a better position to design management systems that link person factors, organisational aspects, and external requirements in a coherent way that improve human and organisational performance (Rummler and Brache, 1995; Kaufman, 1994).

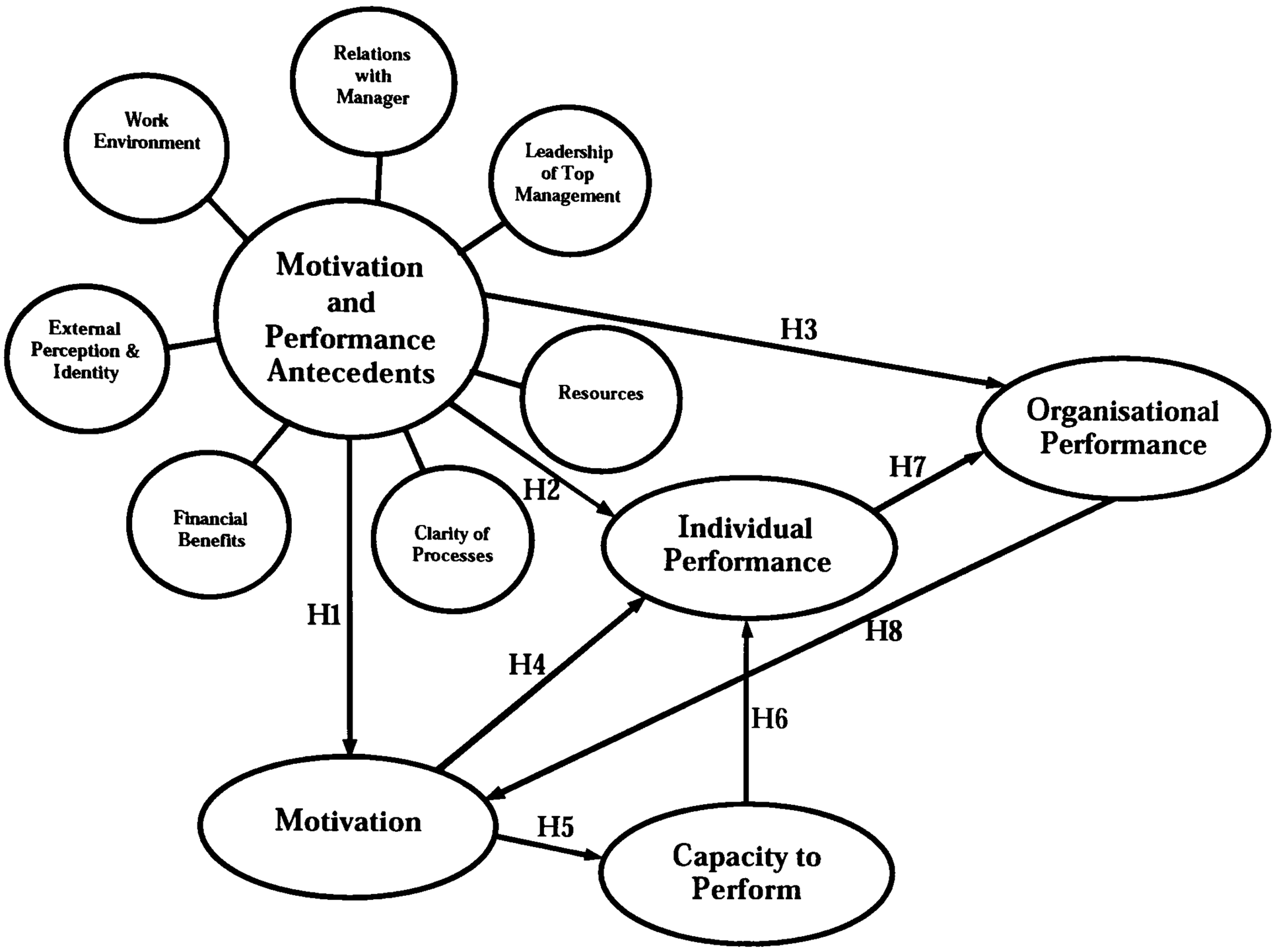

Figure 7.1 The Hypothesised Causal Model of Motivation and Performance

7.6 Summary

This chapter discussed in detail the research findings of the study. First, it presented an overview of research questions and research objectives and showed how the research objectives were achieved. Then, it discussed the research findings as to how they supported the operationalisation of the research constructs. After that, the empirical findings that relate to the relationships between the constructs in the proposed model of motivation and performance were discussed and elaborated. The research hypotheses were discussed with reference to the literature as to how the hypotheses were supported. Finally, the proposed model of motivation and performance was explained and elaborated as to how it should be understood and considered by organisations.

CHAPTER 8 CONCLUSION AND RECOMMENDATIONS FOR FUTURE RESEARCH

8.1 Introduction

This chapter presents some implications and conclusions as a result of the study. First, it presents an overview of the discussion of research findings along with managerial implications. Second, it highlights some limitations of the study. Third, it summarises contribution of the study to the literature of motivation and performance. Fourth, it lays some recommendations for future research. At the end, it provides a brief summary of the study.

8.2 Overview of Discussions and Managerial Implications

Several conclusions can be drawn from this research. In general, the sample data significantly supported the hypothesised Motivation and Performance structural equation model that was derived from the literature. Several factors were found to represent one construct named "Motivation and Performance Antecedents" that positively and significantly influences the three variables Motivation, Individual Performance, and Organisational Performance both directly and indirectly. The Motivation and Performance Antecedents were found to be Resources, Financial Benefits, Clarity of Processes, Leadership of Top Management, External Perception and Identity, Work Environment, and Relations with Manager.

The variable Motivation and Performance Antecedents significantly influences the three variables Motivation, Individual Performance, and Organisational Performance both directly and indirectly. Firstly, it influences Motivation directly

and indirectly, mainly, through Organisational Performance (H1). Secondly, it influences Individual performance directly and indirectly, mainly, through Motivation (H2). Finally, it influences Organisational Performance directly and indirectly, mainly, through Individual Performance (H3). The variable Motivation, in turn, significantly influences the two variables Individual Performance and Capacity to Perform. It influences Individual Performance directly and indirectly, mainly, through Capacity to Perform (H4); while it mainly influences Capacity to Perform directly only (H5). The variable Capacity to Perform significantly influences the variable Individual Performance mainly directly only (H6). The variable Individual Performance significantly influences the variable Organisational Performance mainly directly only (H7). Finally, the variable Organisational Performance significantly influences the variable Motivation mainly directly only (H8). This final relationship (H8) closes the loop: Motivation → Capacity to Perform → Individual performance → Organisational Performance → Motivation.

The hypothesised model suggests that while Motivation and Performance Antecedents did not have a direct impact on Capacity to Perform, it influences Capacity to Perform indirectly, mainly, through Motivation. The managerial implication of this indirect relationship is that for managers to improve their employees capacity to perform their job tasks, they should know what factors motivate their employees to improve their capacity to perform. For example, based on individual preferences, managers may provide opportunity for developing knowledge and skills or for performing a challenging task linked to job outcomes.

Finally, the significant unidirectional relationship between Organisational Performance and Motivation (H8) suggests an interesting result in addition to the direct impact of Organisational Performance on Motivation. This relationship

(H8) closes the loop: Motivation → Capacity to Perform → Individual performance → Organisational Performance → Motivation. The implication of this loop is that, generally, employees like what they do well, and are therefore more likely to do it again and put in more effort in what they do well. If they put in more effort, their work generally gets better, and so this sustains their motivation. Feelings of being able to do something and feelings of sustained motivation are linked into an upward spiral of a self- perception of Motivation → Capacity to Perform → Individual performance → Organisational Performance → Motivation, and so on. This spiral relationship therefore leads to commitment and improved results in the workplace (Littlejohn, 2001). An important managerial implication of this loop is that managers should communicate organisational outcomes to their employees. This feedback is very important to the employees as it reflects their achievements; and if management celebrates business results with their employees, then they are more likely to achieve these results again and again.

These findings have a number of important managerial implications. In the next subsection, we provide some useful points and implications for managers who are seeking to motivate their employees towards producing job outcomes.

8.2.1 The Relationship of Motivation and Performance Antecedents with Motivation, Individual Performance, and Organisational Performance

The managerial implication of the significant unidirectional relationship between the Motivation and Performance Antecedents and Motivation (H1) is that organisations should pay a great deal of attention to what motivates their individuals towards producing business results. Managers should know that employee motivation depends on the characteristics of the person, job, and environment and how these characteristics interact with each other. Therefore,

managers should know that motivation is a dynamic trait because it may change with changes in characteristics of the person, job, and/or environment (Vroom, 1995). So, managers play important roles in their organisations in leading and motivating their employees. For them to lead and motivate their employees, they should understand their people (their beliefs, attitudes, and behaviours) and act accordingly in a way that facilitates and enables their employees to perform behaviours that lead to valued results. This means that managers need to know both the *what* and the *how* of motivation. They need to know what factors within the individual energise, direct, sustain, or stop his or her behaviour, and should identify the specific needs that motivate their individuals. After knowing what motivates their employees, they should also know how to energise, direct, sustain, or stop behaviour of their employees. Managers need to understand the process of motivation and how each individual is motivated based on his or her preferences, rewards, and accomplishments.

The empirical findings of the study suggest that organisations need to pay attention to the seven main factors that motivate their employees and improve their performance, which in turn result in improved organisational performance. Also managers need to be aware that these seven factors need to be considered as a whole in an interactive manner. The seven factors as to what they are and how they can be implemented by managers are highlighted here.

The relationship of Motivation and Performance Antecedents with Motivation (H1), Individual Performance (H2), and Organisational Performance (H3) have many important managerial implications. It can be noted from the structural equation model of motivation and performance (analysed previously in chapter 6; see figure 6.3) that the study investigated the importance of considering all the antecedents of motivation and performance as a single multidimensional construct. This was then used in subsequent structural model testing of

directional relationships. The parameter estimates shown in figure 6.3 were the results of analysing the hypothesised structural equation model of motivation and performance considering the simultaneous existence of all the seven factors that act as antecedents to motivation and performance. Highlighted next is the extent to which the seven factors contribute to the strength of the proposed Motivation and Performance Framework and the relative importance of these factors in doing so. The regression weights of each of the factors and their significance levels indicate the relative influence impact of these factors.

It was found from the analysis presented in table M.3 in Appendix M that all the regression weights for the seven factors were significant at the 0.001 level. A summary of the regression weights and significance levels for the seven factors is reproduced from table M.3 in Appendix M, and shown here in table 8.1. The regression weights for theses factors in terms of their order of importance were as follows: 0.888 for Leadership of top Management, 0.854 for Work Environment, 0.758 for Clarity of processes, 0.734 for External Perception and Identity, 0.666 for Relations with Manager, 0.662 for Resources, and 0.652 for Financial Benefits. All these regression weights indicate that each of the seven factors contributed to the motivation and performance model in a strong way (the minimum is 0.652 and the maximum is 0.888). The Leadership of Top Management (0.888) showed the strongest level of contribution to the major construct Motivation and Performance Antecedents. This implies that the factor Leadership of Top Management represents the most important antecedent of motivation and performance. The importance of this factor has been reinforced by the discussion in chapter 2. The second important factor suggested by the study was Work Environment (0.854). This factor exhibited also a very strong impact as an antecedent to motivation and performance. Next, the two factors Clarity of Processes (0.758) and External Perception and Identity (0.734) exhibited strong levels of contribution to the major construct Motivation and

Performance Antecedents. Finally, the three factors Relations with Manager (0.666), Resources (0.662), and Financial Benefits (0.652) indicated almost equal levels of importance as their regression weights on the major construct Motivation and Performance Antecedents were almost equal. Table 8.1 shows the factors in terms of their relative importance.

Table 8.1 The Regression Weights and Significant Levels of the Seven Motivation and Performance Factors

Motivation and Performance Factor	Regression weight (B)	Significance Level (p)	Critical Ratio (CR)
Leadership of Top Management	0.888	0.000	8.756
Work Environment	0.854	0.000	7.145
Clarity of Processes	0.758	0.000	8.340
External Perception and Identity	0.734	0.000	8.127
Relations with Manager	0.666	*	*
Resources	0.662	0.000	6.737
Financial Benefits	0.656	0.000	6.111

* Unstandardised regression weight set to be equal to 1 to allow identification.

The fact that the seven factors of motivation and performance loaded into a single construct highlights the interaction and moderation nature amongst these factors. The existence of each of these factors will have a moderating impact on the way the other factors impact the employees motivation and performance. The implication of this is that managers should look at all of these factors as a whole in order to gain better understanding of how their employees can be better motivated to put in extra efforts in actions that lead to achieving the goals of the organization. This implies that if one or some of these factors were considered by managers separately without considering the other remaining factors, then their employees may not be motivated to do their job in the best possible way. In other words, the antecedent element can not to be managed in isolation, since each affects and is affected by the others valence.

Leadership from this study comes as the most important factor affecting motivation. Individuals in any organisation are highly affected by the actions and behaviours of their leaders. Leaders must therefore be very sensitive in their actions, given that they have immensely pervasive impact. The study findings relating to the factor *Leadership of Top Management* suggest that the leadership of top management of any organisation must be highly supportive. The top management can be effective by focusing on the market orientation of the firm (McGregor, 1960; Likert, 1967; Oakland, 1995), building effective strategies (Griffin, 2000; Robinson and Pearce, 1988), and involving employees in the decision-making process (McGregor, 1960; Likert, 1967; Oakland, 1995). For organisations to have proper orientation their long-term goals and objectives should be set in a way to fit and match with the requirements of the external environment and industry. They must have strong competitive advantages that differentiate them from their competitors. The vision and mission of the organisation should reflect on the orientation of the organisation at the external level. Then this must be translated into clear strategies and plans of how to implement the strategies. For employees to feel a sense of ownership, the top management must involve them in the decision-making process through, for example, involving them in discussion meetings and welcoming their suggestions.

Second, the study findings with regard to the factor *Work Environment* show that creating an effective work environment is an important motivational and performance element. Managers can create effective work environment by ensuring a match between the organisation and employee (Sims and Keon, 1997), encouraging a feeling of team spirit and cohesion among all employees (Dean and Bowen, 1994), facilitating open communication among employees (Morrow, 1997), and availing satisfactory working conditions (Herzberg *et al.*, 1959; Anderson, 1984; Blegen, 1993). In order for organisations to overcome the problem of person-job fit, for example, they should improve their recruitment

processes by focusing on improved recruiting practices, including advertising. For example, an advert that talks about a career rather than only a job, will be more attractive to competent people. To foster good relations amongst colleagues and teamwork managers can arrange appropriate socialising events and involve employees in group based activities. To facilitate open communication in the organisation, the correct information must be made available for employees the coordination between people within a department and in different departments nee to be made easy. Finally, the working conditions in the organisation need to be satisfying and free from too many interferences or disruptions. The working load needs to be reasonable and not stressful. The conditions around the employee need to be in such a way that helps him or her to perform well.

Third, the loading into a single multi-dimensional construct highlights that even if an organisation processed clear processes and standards of operations individuals may not be necessarily motivated, if other factors are lacking. For instance, if individuals are not empowered to change the standards or have the resources to deliver to the standards, demoralisation is likely to set in. The study findings with regard to the factor *Clarity of Processes* suggest that in order for these resources to be utilised effectively, the processes in any organisation need to be augmented by clear standards and procedures. The existence of clear standards and procedures has a number of benefits. They will make it easier for employees to perform their tasks, easier for managers to guide and counsel their staff, easier for managers to perform staff appraisals, and will result in generating a fair environment (Spitzer, 1999; Gilbert, 1978; Eyres, 1999). Therefore, organisations should design effective and efficient procedures that help employees to perform the processes and achieve the set standards. The procedures need to be designed in an efficient way that avoid unnecessary steps and wasted motions. They need to be based on sound methods and they need to be appropriate to the job and

skill level. Also they should be free of boring and tiresome repetition (Gilbert, 1978).

Fourth, the empirical findings with regard to the factor *External Perception and Identity* show that it is very important for organisations to have a good reputation in the eyes of the society. This increases identification and association of employees to their organisation (Ashforth and Mael, 1989). Organisations can improve their reputation by creating a good corporate identity (Balmer and Soenen, 1999; Kiriakidou and Millward, 2000) and paying attention to the society (Webster, 1975). For an organisation to build up a strong corporate identity for itself its products or services must be liked and preferred by the external and internal people. The organisation needs to build a strong reputation for itself and show that it is a prestigious one. Also, for organisations to be seen that they are caring for the society, they should enrol in programmes that result in benefits to the society.

Fifth, the empirical findings relating to the factor *Relations with Manager* suggest that managers should maintain good relations with their employees. Managers can foster an effective relations with their employees through creating a trust relationship between them and their employees (Rotter 1967; Hosmer, 1994; Hummels and Roosendaal, 2001), guiding and counselling their employees in doing their job (Deming, 1986; Juran, 1989; Beer and Walton, 1987; Sandell, 1979), empowering their employees (Oakland, 1995), and providing feedback to their employees (Tosti, 1986; Harless, 1990). To build up strong trust relationships with employees, managers need to communicate with their employees openly and freely. Employees must feel free to express their thoughts and concerns openly to their managers. Managers must attend and respond to the concerns of their employees in a positive way. For managers to act as coaches to their employees, they should be able to guide their employees and

help them to remove any obstacles that they face in their work. This will require that managers must be aware of the nature of their employees' job activities. To empower their employees, managers need to delegate to them the tasks that are related to their job along with the authority to do that. At the same time, managers need to follow up with their employees in order to provide them with the appropriate feedback. Employees need to know that they are on the right track and that their managers are aware of that.

Sixth, the study findings with regard to the factor *Resources* suggest that organisations should pay a great deal of attention to the resources that are needed by employees to perform their tasks. These resources include tools and materials, time, information technology, expertise, information, systems and processes for work, and availability of training (Gilbert, 1978; Chrisman *et al.*, 1998; Barney, 1991; Grant, 1991). Managers must realise that without having the tools and equipment required to do the job activities their employees will not be able to perform properly. This will be the case even if employees are satisfied with all the other motivation and performance factors. Having the proper resources is very important in conducting the job activities in any organisation (Brethower, 1995; Juran and Gryna, 1988). The existence of the appropriate resources to do the job, for example, explains the importance of looking at all the motivation and performance factors in totality, as a one whole and that these factors should be integrated in the workplace.

Finally, the study findings with regard to the factor *Financial Benefits* suggest managers should understand that financial incentives can motivate employees only if these incentives are linked and aligned to performance and business results (Prendergast 1999; Guzzo and Katzel 1987; Libby and Lipe 1992). This can be taken care by the design of financial incentives. So, when designing financial incentive systems, organisations must bear in mind the influence aspects

that can motivate individuals. If individuals realise that producing specific outputs will result in some financial benefits, they will direct their efforts in a way to produce the required outputs so that they can get the expected benefits (Lawler, 1987; Beer, 1993; Antonioni, 1994; Cumming, 1994). To design effective financial incentive systems, organisations must consider a number of issues. The pay for the job, for example, must be competitive. There also should be sufficient bonuses or raises that are based on good performance. Also, the financial incentives should be scheduled well and not so frequently as to loose meaning or so infrequently as to be useless. Moreover, organisations need to consider punishment consequences for performing poorly. The balance of negative and positive incentives should be in favour of good performance (Gilbert, 1978).

At an overall level, the study has implications in terms of building and sustaining competitive advantage in the new environment of the knowledge-economy (k-economy). Firstly, the research highlights that the central role in building competitive advantage for business is predicated upon motivated people in the organisation. The research suggests that no matter what the organisational competences are, the effect of these is realised through the actions of the implementation. Active implementation requires highly motivated individuals. As the world moves towards k-economy, the management of intellectual assets becomes increasingly crucial. In this highly dynamic and complex environment holding onto the "key assets" of the organisation is a critical task for organisational success. A fundamental to holding onto and leveraging the intellectual assets is motivation. Motivated individuals display high sense of loyalty and organisational citizenship behaviour. It is the outcome effects of such motivated actions that lead to business performance outputs. The findings of this research thus add to and clarify the resource based and competence view of the organisation, by highlighting that competences and capabilities are created and

sustained at the primary level by individual action. Organisational performance is leveraged from organisational competences, and these competencies in turn are built and leveraged through the actions of individuals. Individual performance is influenced causally by individual motivation, which in turn moderated and causally influenced by the antecedents of motivation. These factors and their interrelationships have been clarified in this research study.

8.3 Limitations of the Study

In order to suggest ways in which future research might extend and improve on the present study, the limitations of the study need to be highlighted. This study, like others, has some limitations. These limitations are highlighted as follow:

1. The random sample for the survey was obtained from one service organisation in one country in the Middle East. Thus, the results are generalisable only to the extent that this organisation resembles the population of other organisations in other countries. However given the good response rate, the common nature of the subject matter, and the multicultural human resources of respondents, the results are considered reasonable.

2. The survey mailings and returns covered a one month period that immediately followed a change in top management of the organisation under investigation, which may have introduced a slight confusion and uncertainty to employees and hence may have affected their responses.

3. The data collected here are based on the respondents perceptions and their feelings and therefore, may not always reflect the true picture of the actual situation.

4. The wording of the items in the questionnaire may be interpreted differently by the respondents. These varied interpretations and perceptions may have played a role in the answers provided on the survey and impacted the findings.

5. The model did not test for the relationships between the first-order factors of the second-order factor Motivation and Performance Antecedents and the other constructs of the model (e.g., between Resources and Motivation, between Resources and Individual Performance, ...etc.).

6. The model did not test for the inter-relationships among the first-order factors of the second-order factor Motivation and Performance Antecedents (e.g., between Resources and Work environment, between Work Environment and Relations with Manager, ...etc.).

8.4 Contributions of the Study

There have been many publications concerning either work motivation or human performance in the workplace. However, there is an almost total absence of research that studies the link between the two constructs. The outcomes of this research are expected to contribute to the body of knowledge on work motivation and human performance in several ways.

First, the study extends the body of knowledge by conceptualising the motivation construct such that it encapsulates the factors of motivation in operational terms at the different levels in the organisation, which hitherto have been examined in isolation. Second, the study extends investigation into the link between work

motivation and human and organisational performance by clear specification of elemental constructs of motivation as mediators to human and organisational performance. Finally, the study proposes a richer integrated theoretical framework, which aims to throw further insight into the causal linkages between the elemental constructs of motivation. Pragmatically, the model could subsequently be used to identify motivational barriers and improve human performance and as a consequence business performance. These contributions are elaborated in the following subsections.

8.4.1 Operationalisation of the Motivation Construct

Organisational behaviour research has used traditional motivational theories as general frameworks to study specific measures of employee behaviours such as work environment, task performance, or organisational performance without explicitly measuring "motivation". The components of most definitions of motivation (activation, direction, and maintenance of behaviour) are not explicitly examined (Ambrose and Kulik, 1999). This study operationalised the construct *Motivation* in terms of activation, direction, and maintenance of behaviour that lead to specific outcomes. The confirmatory factor analysis (CFA) approach was used to develop a reliable and valid measurement model for the construct *Motivation*. The developed measurement model for the construct *Motivation* was found to be both reliable and valid as judged by the goodness-of-fit statistics (see section 5.2). So, this study was able to measure the construct *Motivation* in explicit terms in order to enable linkages between antecedents of motivation and performance as input variables and human and organisational performance as output variables taking into consideration *Motivation* as a mediating variable.

8.4.2 Motivation as a Mediator Variable

It has been noted that organisational behaviour researchers have examined the relationship between input variables, such as *work environment* and *relations with manager*, and output variables, such as *individual performance* or *organisational performance*, without considering *motivation* as a mediating variable (Ambrose and Kulik, 1999). As far as the researcher is concerned, this empirical study is the first of its kind that examines motivation as a mediator to human and organisational performance. The study examined the linkages between the five measures: Motivation and Performance Antecedents, Motivation, Capacity to Perform, Individual Performance and Organisational Performance. It was found that Motivation mediates the relationship between Motivation and Performance Antecedents and Individual Performance. Also, it was found that Motivation combines in a serial manner with Individual Performance to act as mediators to the relationship between Motivation and Performance Antecedents and Organisational Performance.

8.4.3 Development of a Conceptual Framework for Motivation and Performance

It was indicated by the research problem that there is almost not empirical research that examines motivation as a mediating variable between input variables (e.g. work environment) and output variables (e.g. individual performance). To motivate employees towards carrying out activities that lead to valued results in the workplace is a very challenging task for organisations. To develop and implement an appropriate framework that motivates employees in their workplace is a complex process. This study developed a conceptual framework for motivation and performance that causally links the following five constructs: Motivation and Performance Antecedents, Motivation, Capacity to Perform, Individual Performance and Organisational Performance. This

framework is shown in figure 7.1. The results suggest that Motivation and Performance Antecedents affects Individual Performance and Organisational Performance both directly and indirectly. While Motivation alone mediates the relationship between Motivation and Performance Antecedents and Individual Performance, it combines in a serial manner with Individual Performance to act as mediators to the relationship between Motivation and Performance Antecedents and Organisational Performance.

One interesting observation about the input variable Motivation and Performance Antecedents is its operationalisation as a second-order construct in a way that it encapsulates together a number of factors that lead to human motivation and performance. The implication of this is that the developed model can cater for other motivation and performance factors that were not considered by the study. Another interesting point in the model is the upward spiral relationship between the variable Motivation and the variable Organisational Performance. As it can be noted from figure 7.1, Motivation leads to Capacity to Perform (H5), then Capacity to Perform leads to Individual Performance (H6), then Individual Performance leads to Organisational Performance (H7), then Organisational Performance leads to Motivation (H8), then Motivation leads to Capacity to Perform (H5), and so on. This upward spiral relationship between Motivation and Organisational Performance is named by the study as the *Motivation Loop.*

The Motivation and Performance Conceptual Framework developed from the literature and empirically validated can act as a basis for further investigation of the relationship between motivation and performance factors as input variables (e.g. work environment) and output measures (e.g. individual performance) with the consideration of Motivation as a mediating variable. This may further substantiate the evidence of the relationships among the constructs of the model.

Also, the proposed model can act as a general framework for practitioners to analyse human motivational and performance problems in the workplace. So, The proposed model for motivation and performance can be considered to be important for both academics and practitioners alike.

8.5 Recommendations for Future Research

To explore implications for further research, some limitations of the present study need to be addressed. In this section, we explore some practical implications of the research and suggest ways in which future research might extend and improve on the present study. Some recommendations for future research are discussed below:

1. The model did not test for inter-relationships among the first-order factors of the second-order factor "Motivation and Performance Antecedents" and the impact of each of these fist-order factors on Motivation, Individual Performance, and Organisational Performance. The model can be enhanced by examining the inter-relationships among these first-order factors and the impact of each factor on Motivation, Individual Performance, and Organisational Performance.

2. Although the variance in the second-order variable Motivation and Performance Antecedents explained by the model is substantial, further enhancement of this measurement model in terms of classification of its first-order factors may enhance the strength and explanatory power of the hypothesised structural equation model.

3. To determine the generalisability of the model and identify the boundary conditions, the model should be tested in a range of different settings of

environments. Key distinguishing features of such settings are type of organisation (e.g. service, manufacturing, public, private, ...etc.), size of organisation, geographical location, customer segments, work complexity, and type of service or product.

8.6 Summary

It was indicated in the research problem of this study that organisational behaviour researchers studied the link between motivation factors as input variables (e. g. work environment) and employee behaviour measures as output variables (e.g. individual performance) without taking into consideration the construct of human motivation as a mediator (Ambrose and Kulik, 1999). This study attempted to increase the understanding of work motivation as a mediator to human and organisational performance, in order to provide useful insights to managers who seek to improve the performance of their organisations through their employees. As far as the researcher is concerned, this study is the first of its kind to examine human motivation as a mediator to human and organisational performance.

Based on examining 10 total quality management (TQM) frameworks, 6 human performance technology (HPT) models, 9 motivation theories, and empirical findings from the literature, the study identified and developed seven independent factors and four dependent factors that relate to human motivation and performance in the workplace. The seven independent factors, grouped into a major constructs named as "Motivation and Performance Antecedents", were: Work Environment, Relations with Manager, Leadership of Top Management, Resources, Clarity of Processes, Financial Benefits, and External Perception and Identity. The four dependent factors were: Motivation, Capacity to Perform, Individual Performance, and Organisational Performance. This study attempted

to identify and empirically verify the relationships between Motivation and Performance Antecedents, Motivation, Capacity to Perform, Individual Performance, and Organisational Performance. A structural equation model for motivation and performance that links these five constructs, along with ten hypotheses that link the five constructs were derived from the literature.

The study employed the structural equation modelling (SEM) approach using the AMOS 4.0 programme to test the proposed Motivation and Performance structural equation model and pertinent hypotheses. The research findings provide a strong support to the proposed model and pertinent hypotheses. The research findings suggest that the variable Motivation and Performance Antecedents positively influences the variables Motivation (Hypothesis 1), Individual Performance (Hypothesis 2), and Organisational Performance (Hypothesis 3). The variable Motivation has been found to have a direct impact on Individual Performance (Hypothesis 4) and Capacity to Perform (Hypothesis 5) variables. The Capacity to Perform variable was found to positively affect the Individual Performance variable (Hypothesis 6), which in turn affects the Organisational Performance variable (Hypothesis 7). The Organisational Performance variable was seen to positively influence the Motivation variable (Hypothesis 8).

The study examined human motivation as a mediator to human and organisational performance. The research findings suggest that the variable Motivation mediates the relationship of the variable Motivation and Performance Antecedents with the variable Individual Performance (Hypothesis 9), and the relationship of the variable Motivation and Performance Antecedents with the variable Organisational Performance (Hypothesis 10). While Motivation, alone, mediates the relationship between Motivation and Performance Antecedents and Individual Performance, it combines in a serial manner with Individual

Performance to act as mediators to the relationship between Motivation and Performance Antecedents and Organisational Performance.

The research results empirically show the relationships between Motivation and Performance Antecedents, Motivation, Capacity to Perform, Individual Performance, and Organisational Performance. Managers in organisations who understand these relationships can use this knowledge to effectively and efficiently improve the performance of their employees and hence the performance of their organisations. Knowledge of these relationships will enable managers to better understand how various factors of motivation and performance can be put together to motivate their employees to exert efforts toward their job outcomes and hence improve their performance, which in turn will result in organisational performance improvement.

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APPENDIX A
HPT MODELS

Stimulus	*Response*	*Consequences*
Cell 1: Environment Information	**Cell 2: Environment Resources**	**Cell 3: Environment Incentives**
* Description of what is expected of performance * Clear and Relevant guides on how to do the job *Relevant and frequent feedback on adequacy of performance	*Tools, resources, time, and materials designed to achieve performance needs *Access to leaders *Sufficient personnel *Organised work processes	*Adequate financial incentives contingent upon performance * Non-monetary incentives *Career development opportunities *Clear consequences for poor performance
Cell 4: Individual Knowledge	**Cell 5: Individual Capacity**	**Cell 6: Individual Motives**
*Systematically designed training to match requirements of exemplary performers * Opportunity for training	*Match between people and position *Good Selection processes *Flexible Scheduling to match peak capacity of workers *Prostheses or visual aids to augment capacity	*Recognition of worker's willingness to work for available incentives * Assessment of worker's motivation * Recruitment of workers to match realities of work conditions

Figure A.1 Gilbert's Behaviour Engineering Model (Gilbert, 1978)

Category	Question
Directional Data	1. Are there sufficient readily accessible data (or signals) to direct an experienced person to perform well?
	2. Are they accurate?
	3. Are they free of confusion that slows performance and invites error?
	4. Are directions free of "data glut" – stripped down to the simplest form and not buried in extraneous data?
	5. Are they up to date and timely?
	6. Are good models of behaviour available?
	7. Are clear and measurable performance standards communicated so that people know how to perform?
	8. Do people accept the standards as reasonable?
Confirmation (Feedback)	1. Is feedback provided that is "work related" – describing results consistent with standards and not just behaviour?
	2. Is it immediate and frequent enough to help employees remember what they did?
	3. Is it selective and specific – limited to a few matters of importance and free of "data glut" and vague generalities?
	4. Is it educational – positive and constructively informative so that people learn something from it?
Tools & Equipment	1. Are the necessary tools on hand for doing the job?
	2. Are they reliable and effective?
	3. Are they safe?
Procedures	1. Are procedures efficient and designed to avoid unnecessary steps and wasted motion?
	2. Are they based on sound methods rather than historical "happenstance"?
	3. Are they appropriate to the job and the skill level?
	4. Are they free of boring and tiresome repetition?
Resources	1. Are adequate materials, supplies, assistance, etc. usually available to do the job well?
	2. Are they efficiently tailored to the job?
	3. Do ambient conditions provide comfort and prevent unnecessary interference?
Incentives	1. Is the pay for the job competitive?
	2. Are there sufficient bonuses or raises based on good performance?
	3. Does good performance have any relationship to career advancement?
	4. Are there meaningful non-pay incentives, e.g. recognition, for good performance based on results not behaviour?
	5. Are incentives scheduled well or so frequently as to lose meaning and so infrequently as to be useless?
	6. Is there an absence of punishment/consequences for performing poorly?
	7. Is there an absence of incentives to perform well?
	8. Is the balance of positive and negative incentives in favour of good performance?
Knowledge and Training	1. Do people understand the consequences of both good and poor performance?
	2. Do they grasp the essentials of performance, e.g. the "big picture"?
	3. Do they have the technical concepts to perform well?
	4. Do they have sufficient basic skills, e.g. reading, math, computer, etc.?
	5. Do they have sufficient specialised skills?
	6. Do they have the skill after initial training?
	7. Are good job aids available?
Capacity	1. Do incumbents have the basic capacity to learn the necessary perceptual discriminations with accuracy and speed?
	2. Are they free of emotional limitations that would interfere with performance?
	3. Do they have sufficient strength and dexterity to learn to do the job well?
Motives	1. Do incumbents seem to have the desire to perform when they enter the job?
	2. Do their motives endure, e.g. is the turnover low?

Figure A.2 Gilbert's PROBE Model (Gilbert, 1978)

Component	Example
Mission : The major purpose a performance system exists	"We provide training services to our company that ensure that the people we train have the knowledge, skills, and attitudes needed to support excellent on-the-job performance."
Input: Information technology, people, money, or material that initiates or is a resource for a work process	An employee answers a ringing telephone. A shipment of material arrives. People, technology, and operating capital enter a start-up venture. A part arrives at a work station.
Processing System: A system that processes inputs, generating at least one output valued by an external receiver	A set of integrated work processes that does all the work of a specific organisation. A set of integrated work tasks that yields a specific product or service that customers value.
Internal Feedback: Information about the performance of individuals, workgroups, or processes that is used to guide performance	Widget-maker uses information about the quality and timing of widgets she has produced to adjust her work so that the widget order will be filled on time.
Output: Information, money, material, or added value that is produced by a work task or process	Customers receive packaged goods. A potential customer receives a price quote.
Receiving System: A set of systems that are closely linked to a processing system and receive its outputs	A set of customers, clients, suppliers, or other stakeholders that receive the processing system's outputs. These may include the clients of a service agency, the governmental programs and charitable organisations that fund the agency , and various sources of employees and technology
External Feedback: information from customers and other external sources, used to guide performance.	A widget- maker gets information about customer preferences in widget and make adjustments on widget design or quality standards

Figure A.3 Brethower's Total Performance System (TPS) model (Brethower, 1982)

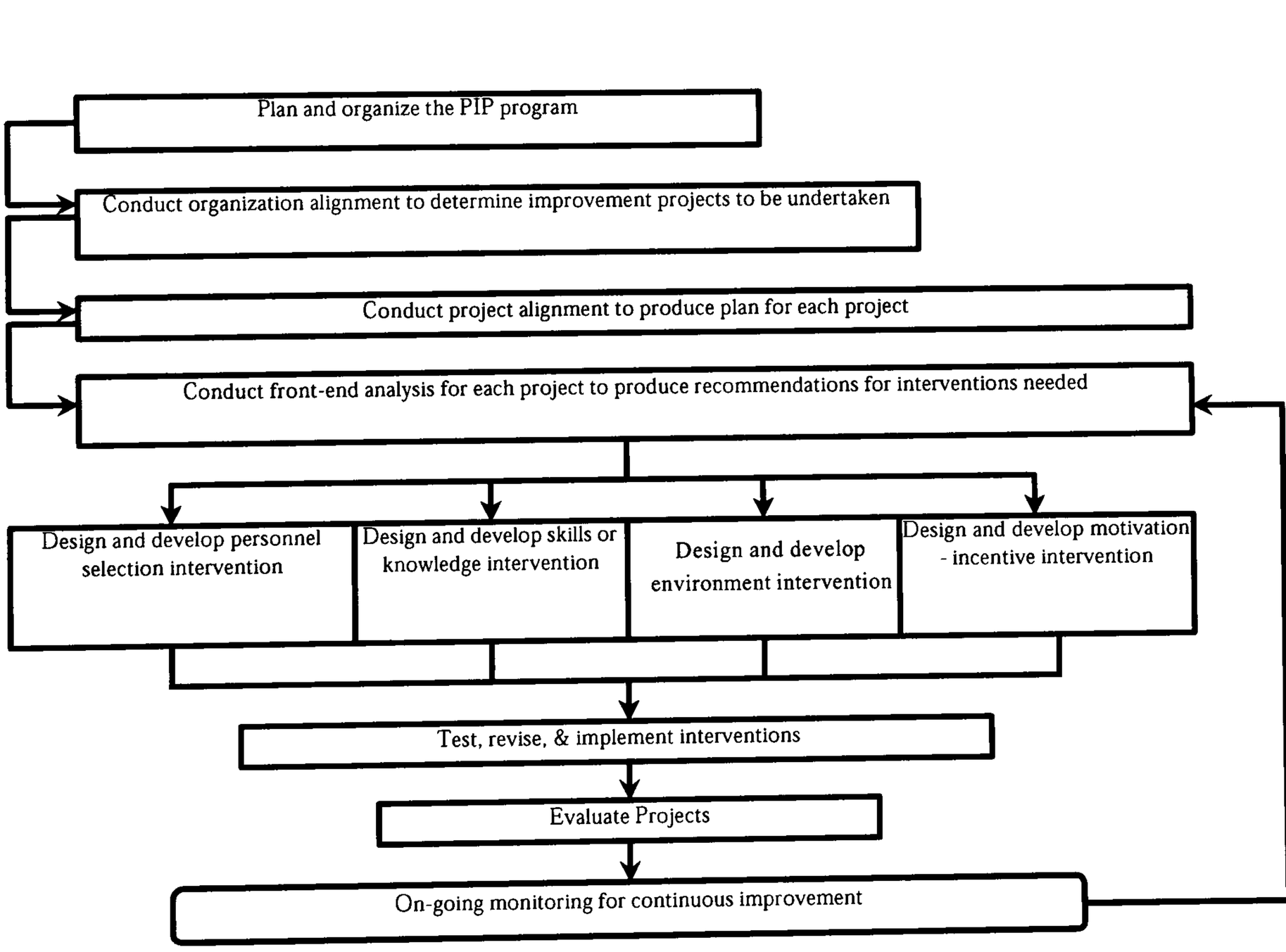


Figure A.4 Harless' Performance Improvement Process (PIP) Model (Harless, 1990)

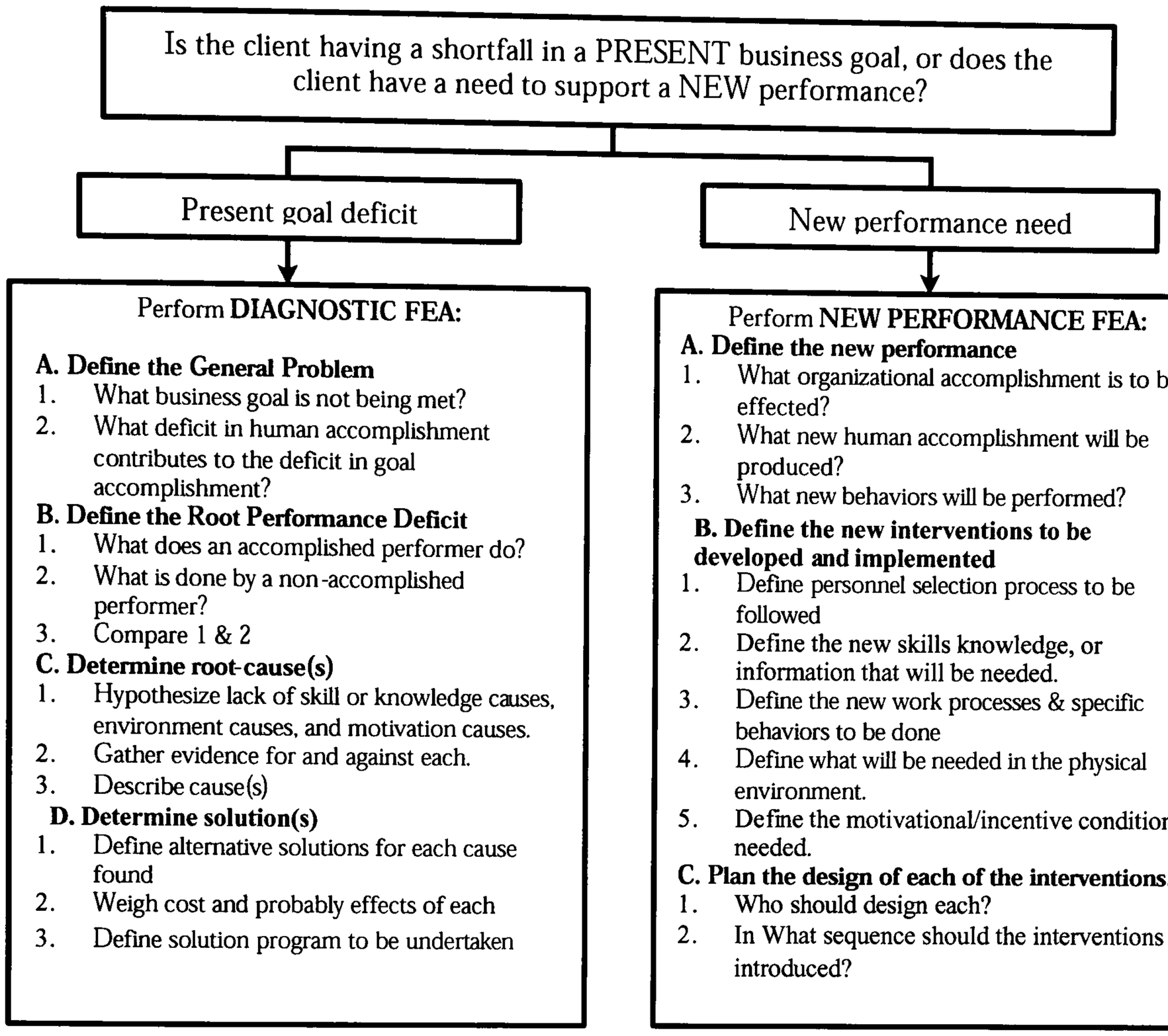


Figure A.5 Harless' Front-End Analysis Model (Harless, 1970)

Levels of Planning and Associated Levels of Results

LEVELS OF PLANNING AND SCOPE OF RESULTS	PRIMARY CLIENT AND BENEFICIARY OF WHAT IS PLANNED AND DELIVERED	LEVELS OF RESULTS
Mega	External Clients and Society, Now and in the Future	Outcomes
Macro	The Organisation Itself	Outputs
Micro	Individuals and/or Small Groups Within the Organisation	Products

Figure A.6 Kaufman's Strategic Planning Plus Model (Kaufman and Watkins, 1996)

The Nine Performance Variables

Performance Levels	Performance Needs		
	Goals	**Design**	**Management**
Organisational Level	Organisational Goals	Organisational Design	Organisational Management
Process Level	Process Goals	Process Design	Process Management
Job/Performer Level	Job Goals	Job Design	Job Management

Figure A.7 Rummler's Performance Improvement Model (Rummler and Brache, 1990)

Phase 1: Performance Improvement Planning

1. Define the project. What is the critical issue?
2. Develop a project plan. Include events and dates for improvement processes.

- *Products: Project definition worksheet and project plan.*

Phase 2: Organizational Improvement

3. Define the organization's system. How does the process fit the big picture?
4. Identify organizational improvement opportunities.
5. Specify improvement actions at the organizational level.
6. Identify processes that affect this critical issue most.

- *Products: Relationship map, organizational analysis and improvement worksheet, organizational analysis and improvement worksheet with actions, and organizational analysis and improvement worksheet with process (es).*

Phase 3: Process Improvement

7. Define the process. Methods include mapping and developing flowcharts. Indicate what is and what should be.
8. Identify process improvement opportunities. Identify the gaps between what is and what should be.
9. Specify improvement actions at the process level.
10. Identify the job that most affects the process. Identify the largest gaps.

- *Products: Process map(s), process improvement and analysis worksheet, process improvement and analysis worksheet with actions, and process improvement and analysis worksheet with job(s).*

Phase 4: Job Improvement

11. Create job specifications to support improved processes
12. Identify job performance improvement opportunities and the gaps between what is and what should be.
13. Specify improvement actions at the job level.

- *Products: Job model(s), job analysis, and performance system design worksheet.*

Phase 5: Process Management

14. Implement and evaluate improvement actions at all three performance levels.

- *Product: Action planning worksheets.*

Figure A.8 The 14-Step Performance Improvement Process (Rummler and Brache, 1990)

INPUT		*CONDITIONS*	*PROCESS*	*OUTCOMES*	*RECIEVERS*
Strategy Mission/vision Strategic direction External needs Driving force Competitive advantage	Organisation	**Structure** Organisational units/ functions Decision authority Work units/ teams	**Systems** Degrees of centralisation Consistency of operation Flexibility Linkages/ interactions	**Organisational Results** Consistency of goals across units Measures of success Satisfaction of stakeholders	**Company Needs**
Demand/Schedule Time requirements, objectives Predictability/cycles Workload Management expectations	Work	**Environment/ Resources** Equipment/ tools/ information Support/ services/ personnel Resources Physical environment	**Methods** Allocation of functions Processes/ procedures Work flow Duplications/ gaps	**Products and Services** Productivity levels Standards/ criteria Product mix Satisfaction of customers	**Customer Needs**
Culture Consistency off values Match between stated values, actual behaviour	People	**Values/ Practices** Management and leadership practice Climate/ team norms Ethics/ integrity Individual behaviour	**Performance Requirements** Skills/ knowledge/ experience Job aids/ references Selection Willingness to try	**Feedback and Motivation** Sources Cues, frequency, timing, form Rewards/ recognition Expectations Satisfaction of employees	**Employee Needs**

Figure A.9 The Organisational Scan (Tosti and Jackson, 1996)

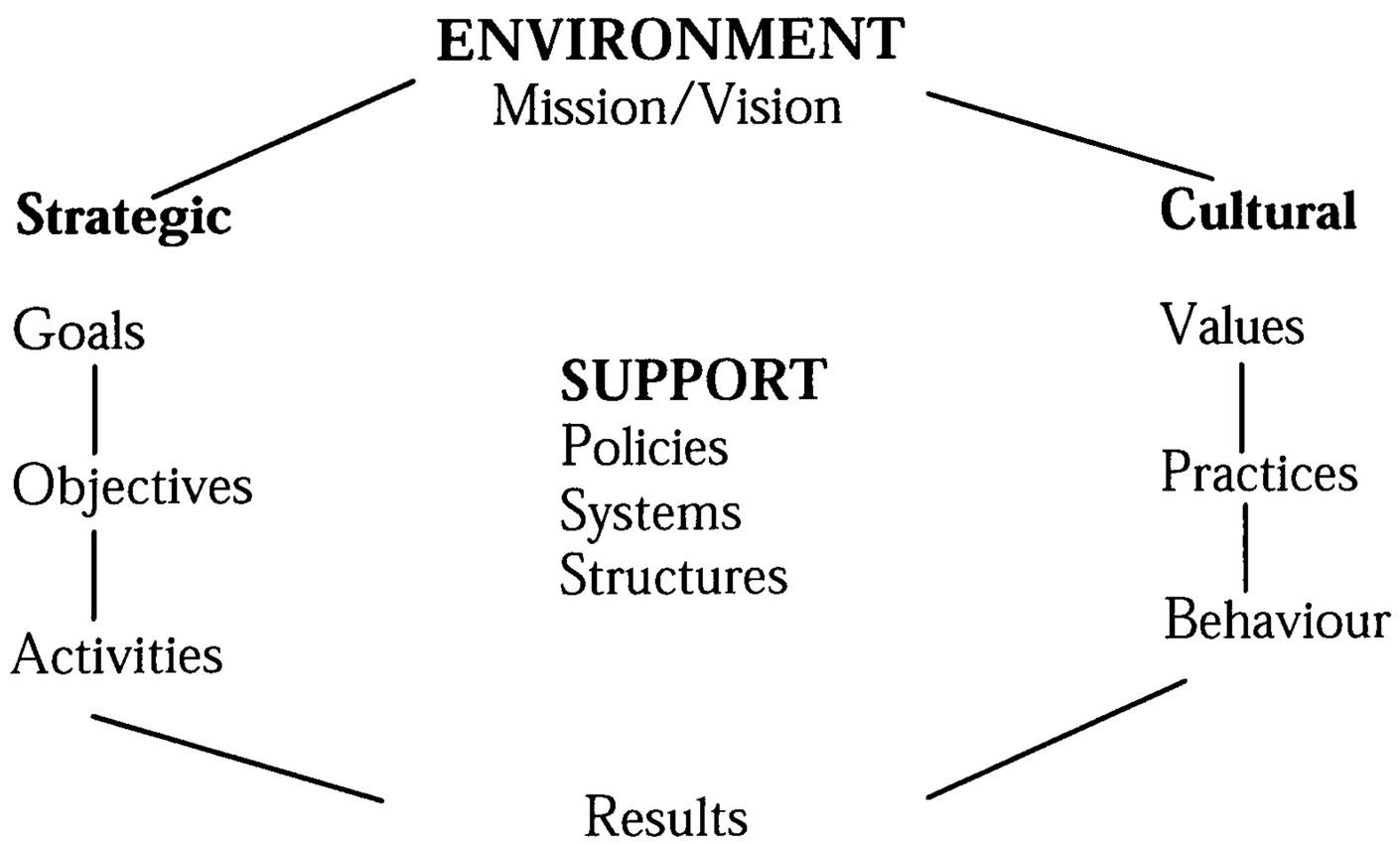


Figure A.10 Organisational Alignment Model (Tosti and Jackson, 1996)

APPENDIX B
DEFINITIONS AND TERMINOLOGY

This appendix displays definitions of basic terms related to research methodologies and methods (Nachmias and Nachmias, 1996; Morvaridi, B. 1999):

- **"Hypothesis"** is an unverified statement of the relationship between variables.

- **"Theory"** is a statement about how and why facts are related.

- **"Paradigm"** refers to a basic image of society that guides thinking and research. Although theories are a part of paradigms, they are not the same thing.

- **"Positivism"** is the path to understanding the world based on science and empirical evidence not speculation.

- **"Population"** is the group of people about whom the researcher seeks knowledge.

- **"Sample"** is the part of the population that represents the entire population. A random sample is necessary in order to achieve generalisability to the entire population. In a random sample, every member of the population has an equal chance of being selected.

- **"Research Method"** is a systematic plan for conducting research. It is concerned with techniques of data collection.

- **"Methodology"** is a system of explicit rules and procedures that relate data and theory.

- **"Quantitative Research"** is the investigation in which the researcher attempts to understand some larger reality by isolating and measuring components of that reality without regard to their contextual setting.

- **"Qualitative Research"** is the investigation in which the researcher attempts to understand some larger reality by examining it in a holistic way or by examining components of that reality within their contextual setting.

- **"Triangulation"** is the use of more than one method of data collection.

APPENDIX C
COVERING LETTER FOR THE PRELIMINARY SURVEY

UNIVERSITY OF WOLVERHAMPTON

The Centre for Enterprise Excellence (CEE)
Wolverhampton Business School
University of Wolverhampton
Tel+44 (0) 1902 323921

28 July 2002

Dear Sir/Madam,

The Centre for Enterprise Excellence (CEE) at the University of Wolverhampton is conducting extensive research on "the Role of Work Motivation in Human Performance and Organizational Improvement". The main purpose of the study is to examine how organizations can become performance improvement oriented by incorporating human performance improvement approaches and investigating how employee's motivation can influence task performance.

This is the first part of my research (preliminary survey), which is conducted to collect data about your opinions of what might affect your motivation at work. I appreciate your willingness to participate in this research. I believe your participation will contribute to the literature of work motivation, human performance, and organizational improvement.

I kindly request that you complete the draft questionnaire, which is estimated to take no longer than 40 minutes. I would also appreciate it if you provide me with feedback on the structure and nature of the draft questionnaire. More specifically, please advise me about the clarity and meaning of the statements in the draft questionnaire and any overlapping statements.

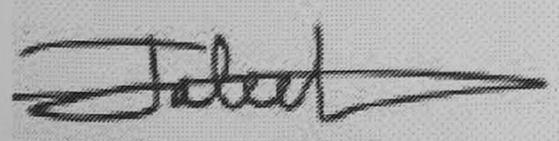
When you have completed the questionnaire, please return it to us using the enclosed self-addressed, stamped envelope. I would appreciate it very much if you return the completed questionnaires within 10 days.

The information that you provide will be kept in strict confidence and no person or company will be identified. Only summarized information will be reported. If you would like a copy of the final report of this study please let me know.

Looking forward to your prompt response.

Thank you for your contribution in conducting this research.

Sincerely,



Jaleel Talaq
Ph.D. candidate
University of Wolverhampton.

APPENDIX D
COVERING LETTER FOR THE FINAL SURVEY

UNIVERSITY OF WOLVERHAMPTON

Wolverhampton Business School
University of Wolverhampton
Shropshire Campus
Shifnal Road
Priorslee
Telford TF2 9NT
Shropshire
United Kingdom

Telephone: +44 1902 323865
UK Code (01902) International Code (+44 1902)
Switchboard 321 000

Direct Line: +44 1902 323921

Fax: +44 1902 321777

12 October 2002

Dear Sir/Madam,

The Centre for Enterprise Excellence (CEE) at the University of Wolverhampton is conducting extensive research on "the Role of Work Motivation in Human Performance and Organisational Improvement". The main purpose of the study is to examine how organizations can become performance improvement oriented by incorporating human performance improvement approaches and investigating how employee's motivation can influence task performance.

This research is being conducted to investigate motivation and performance at work. We believe your participation will contribute to the understanding of motivation, human performance, and organizational improvement. We appreciate your willingness to participate in this research.

We kindly request that you complete the questionnaire, which is estimated to take around 30 minutes. When you have completed the questionnaire, please return it to us using the enclosed self-addressed, stamped envelope. We would appreciate it very much if you return the completed questionnaire within 10 days.

The information that you provide will be kept in strict confidence and no person or company will be identified. Only summarized information will be reported. If you would like a copy of the summary report of this study please let us know.

Looking forward to your prompt response.

Thank you for your time and kindness in participating in this research.

Sincerely,

Professor Pervaiz Ahmed
Candidate Supervisor
University of Wolverhampton

Jaleel Talaq
Ph.D. candidate
University of Wolverhampton

APPENDIX E
QUESTIONNAIRE

Organisational Performance Questionnaire

Background

This survey is aimed to obtain your opinions about what drives human performance in the workplace. Your opinions will help us in identifying the critical factors of organisational performance. The information that you provide will be kept in strict confidence and no personnel or companies will be identified, only summarised information will be reported. We kindly request that you complete the questionnaire which is estimated to take no longer that 30 minutes and return the completed questionnaire to the following address:

Jaleel Talaq
Bahrain Training Institute
PO Box 33090, Isa Town, Bahrain.
Tel: 688407 – Fax: 683305

For further information and any queries, please feel free to contact me on the above address.

Thank for you contribution in accomplishing this research.

Part A: Personal Information

A1. Your gender is : ☐ Male ☐ Female

A2. Your nationality is:_____

A3. Your age group is : ☐ 30 or below ☐ 31-40 ☐ 41-50 ☐ 51 or above

A4. Your highest qualification is : ☐ Ph.D. ☐ Master ☐ Degree
☐ HND ☐ Others:_____

A5. The name of your organisation is : _____

A6. Number of employees in your organisation is :☐ 50 or below ☐ 51 - 500 ☐ 501 or above

A7. Your organisation type is: ☐ Industrial ☐ Commercial ☐ Service ☐ Other: _____

A8. Your job title is: _____

A9. The name of your department is: _____

A10. You have been working for your organisation for: ☐ less than 1 year ☐ 2-4 years
☐ 5-10 years ☐ more than 10 years

Part B: Yourself and your Organisation

Please read each of the following statements carefully and tick (✓) the circle that corresponds to the extent you agree or disagree with the statement using the following scale:

1 = Strongly disagree
2 = Disagree
3 = Slightly disagree
4 = Neither disagree nor agree
5 = Slightly agree
6 = Agree
7 = Strongly agree

		Strongly Disagree	Disagree	Slightly Disagree	Neither disagree nor agree	Slightly Agree	Agree	Strongly Agree
		1	2	3	4	5	6	7
B1.	Overall, I am highly energised to put in extra effort at my work.	①	②	③	④	⑤	⑥	⑦
B2.	Overall, my efforts at my work are highly directed towards the organisational goals.	①	②	③	④	⑤	⑥	⑦
B3.	Overall, I have the willingness to maintain my efforts to reach organisational goals.	①	②	③	④	⑤	⑥	⑦
B4.	Overall, I am highly motivated at my work.	①	②	③	④	⑤	⑥	⑦
B5.	The results I produce at my work are in accordance with the set and targeted standards.	①	②	③	④	⑤	⑥	⑦
B6.	My performance level is very high.	①	②	③	④	⑤	⑥	⑦
B7.	Overall, my organisation achieves its goals and objectives.	①	②	③	④	⑤	⑥	⑦
B8.	Overall, my organisation's performance is very high compared to similar organisations.	①	②	③	④	⑤	⑥	⑦
B9.	I have a sufficient level of confidence that allows me to do my job properly.	①	②	③	④	⑤	⑥	⑦
B10.	I feel confident about my ability to improve my knowledge and skills to meet with new requirements related to my job.	①	②	③	④	⑤	⑥	⑦
B11.	I appreciate it when my manager is able to provide me with feedback about how to improve my knowledge and skills in the job.	①	②	③	④	⑤	⑥	⑦
B12.	Performing my job properly requires a high level of mental ability.	①	②	③	④	⑤	⑥	⑦
B13.	I find it very easy to comprehend (understand) how to do my job.	①	②	③	④	⑤	⑥	⑦
B14.	I can do my job independently, with very little help from others.	①	②	③	④	⑤	⑥	⑦
B15.	My manager and I have a full understanding and agreement of what job outcomes and objectives I should achieve in my work.	①	②	③	④	⑤	⑥	⑦

	Strongly Disagree 1	Disagree 2	Slightly Disagree 3	Neither disagree nor agree 4	Slightly Agree 5	Agree 6	Strongly Agree 7
B16. My manager and I have a full understanding of the consequences of achieving the agreed job outcomes and objectives in my work.	①	②	③	④	⑤	⑥	⑦
B17. I have got a sufficient level of knowledge and skills to enable me to do my job in an acceptable way.	①	②	③	④	⑤	⑥	⑦
B18. My organisation's vision, mission, goals, and orientation are in accordance with my personality type.	①	②	③	④	⑤	⑥	⑦
B19. My job and working conditions match with my preferences.	①	②	③	④	⑤	⑥	⑦
B20. I adapt and change when there are changes in my organisation.	①	②	③	④	⑤	⑥	⑦
B21. My organisation arranges sufficient socialisation events.	①	②	③	④	⑤	⑥	⑦
B22. I like to participate with my colleagues in the social events they attend.	①	②	③	④	⑤	⑥	⑦
B23. I socialise with my colleagues inside our organisation.	①	②	③	④	⑤	⑥	⑦
B24. I socialise with my colleagues outside our organisation.	①	②	③	④	⑤	⑥	⑦
B25. I complete my job tasks within the deadline and in an acceptable manner.	①	②	③	④	⑤	⑥	⑦
B26. I utilise my working hours effectively in doing activities related to my job.	①	②	③	④	⑤	⑥	⑦
B27. My manager communicates with me openly and freely.	①	②	③	④	⑤	⑥	⑦
B28. I feel free to say what I think when communicating with my manager.	①	②	③	④	⑤	⑥	⑦
B29. My manager is generally available when he or she is needed.	①	②	③	④	⑤	⑥	⑦
B30. My manager is seen in the department very frequently.	①	②	③	④	⑤	⑥	⑦
B31. I have a good relationship with my manager.	①	②	③	④	⑤	⑥	⑦
B32. I have good relationships with my colleagues.	①	②	③	④	⑤	⑥	⑦
B33. My manager uses lot of face-to-face contact.	①	②	③	④	⑤	⑥	⑦
B34. My manager responds positively to my concerns.	①	②	③	④	⑤	⑥	⑦
B35. I have a good trust relationship with my colleagues.	①	②	③	④	⑤	⑥	⑦
B36. I have a good trust relationship with my manager.	①	②	③	④	⑤	⑥	⑦
B37. I am paid enough to do my job.	①	②	③	④	⑤	⑥	⑦

	Strongly Disagree 1	Disagree 2	Slightly Disagree 3	Neither disagree nor agree 4	Slightly Agree 5	Agree 6	Strongly Agree 7
B38. I feel my job is secure.	①	②	③	④	⑤	⑥	⑦
B39. I feel highly satisfied when I can prove my ability to perform a challenging task.	①	②	③	④	⑤	⑥	⑦
B40. My organisation provides excellent health care services to its employees.	①	②	③	④	⑤	⑥	⑦
B41. I am highly satisfied with my career development opportunities in my organisation.	①	②	③	④	⑤	⑥	⑦
B42. I am satisfied with the level of clarity for my career advancement in my company.	①	②	③	④	⑤	⑥	⑦
B43. I am satisfied with the promotion(s) I have received in my organisation.	①	②	③	④	⑤	⑥	⑦
B44. My work environment is free from too many interferences and disruptions.	①	②	③	④	⑤	⑥	⑦
B45. My work environment is clean and helps people to perform.	①	②	③	④	⑤	⑥	⑦
B46. My work conditions are comfortable.	①	②	③	④	⑤	⑥	⑦
B47. My workload is very high and above the normal limit.	①	②	③	④	⑤	⑥	⑦
B48. My manager is open and listens to my ideas and suggestions.	①	②	③	④	⑤	⑥	⑦
B49. In general, I have a great deal of say or influence on what goes on in my work group.	①	②	③	④	⑤	⑥	⑦
B50. In general, the top management involves me in the decision making process.	①	②	③	④	⑤	⑥	⑦
B51. In my department, my colleagues and I cooperate to get the job done.	①	②	③	④	⑤	⑥	⑦
B52. I really feel that I belong to a team.	①	②	③	④	⑤	⑥	⑦
B53. I feel highly satisfied with my work environment.	①	②	③	④	⑤	⑥	⑦
B54. Overall, I am highly satisfied with my organisation.	①	②	③	④	⑤	⑥	⑦
B55. The long-term goals and objectives of my organisation fit and match with the requirements of the external environment and industry.	①	②	③	④	⑤	⑥	⑦
B56. My organisation maintains its competitive advantages and tries all the time to be better than its competitors in the market.	①	②	③	④	⑤	⑥	⑦
B57. My organisation proactively analyses and manages the external environment.	①	②	③	④	⑤	⑥	⑦
B58. My manager possesses good leadership skills.	①	②	③	④	⑤	⑥	⑦
B59. My manager treats me fairly.	①	②	③	④	⑤	⑥	⑦
B60. My manager discusses with me the main goals and objectives of the organisation.	①	②	③	④	⑤	⑥	⑦

	Strongly Disagree 1	Disagree 2	Slightly Disagree 3	Neither disagree nor agree 4	Slightly Agree 5	Agree 6	Strongly Agree 7
B61. Normally, my manager guides me to do my job in a better way.	①	②	③	④	⑤	⑥	⑦
B62. Normally, my manager helps in removing the obstacles and barriers that I face in my work.	①	②	③	④	⑤	⑥	⑦
B63. My manager perceives that my work is meaningful and important.	①	②	③	④	⑤	⑥	⑦
B64. My organisation's top management has a clear vision of the future.	①	②	③	④	⑤	⑥	⑦
B65. My organisation's top management has made changes that are positive for the organisation.	①	②	③	④	⑤	⑥	⑦
B66. My organisation's top management proactively responds to important internal issues.	①	②	③	④	⑤	⑥	⑦
B67. Top management of my organisation possesses good leadership skills.	①	②	③	④	⑤	⑥	⑦
B68. Top management of my organisation contributes a lot and pays a great deal of attention to the main goals and objectives of the organisation.	①	②	③	④	⑤	⑥	⑦
B69. My organisation has a written strategic plan to achieve the long-term goals for the next 2 years.	①	②	③	④	⑤	⑥	⑦
B70. My organisation identifies in its strategic plans the necessary activities, resources, cost, time, staff support, … etc. that are required to achieve long-term goals and objectives of the organisation.	①	②	③	④	⑤	⑥	⑦
B71. My department has written plans to achieve the short-term goals for the current year.	①	②	③	④	⑤	⑥	⑦
B72. My job fits well with my abilities.	①	②	③	④	⑤	⑥	⑦
B73. In my department, employees are placed in positions that match with their ability.	①	②	③	④	⑤	⑥	⑦
B74. My manager delegates to me all the tasks related to my job.	①	②	③	④	⑤	⑥	⑦
B75. My manager gives me the authority to decide on how to do my job.	①	②	③	④	⑤	⑥	⑦
B76. I do my job/tasks in an autonomous and free way.	①	②	③	④	⑤	⑥	⑦
B77. In my department, the processes and functions are well integrated with each other.	①	②	③	④	⑤	⑥	⑦
B78. The coordination between my department and other departments makes it easy to receive the correct information and the necessary things that I require to do my job.	①	②	③	④	⑤	⑥	⑦
B79. In my organisation, business processes are controlled by using appropriate control procedures, systems, and standards.	①	②	③	④	⑤	⑥	⑦
B80. The causes of performance problems in my department are identified and eliminated.	①	②	③	④	⑤	⑥	⑦

	Strongly Disagree 1	Disagree 2	Slightly Disagree 3	Neither disagree nor agree 4	Slightly Agree 5	Agree 6	Strongly Agree 7
B81. My manager measures the job outcomes that I produce.	①	②	③	④	⑤	⑥	⑦
B82. My manager compares the actual job outcomes that I produce with the established standards.	①	②	③	④	⑤	⑥	⑦
B83. I know and understand the long-term goals and objectives of my organisation.	①	②	③	④	⑤	⑥	⑦
B84. The correct information that I require to do my job properly is available to me.	①	②	③	④	⑤	⑥	⑦
B85. The availability of the correct information on time makes it easy for me to communicate with others and do my job better and quicker.	①	②	③	④	⑤	⑥	⑦
B86. My manager discusses with me the results of my work and provides me with clear and timely feedback.	①	②	③	④	⑤	⑥	⑦
B87. My manager evaluates my performance at work frequently.	①	②	③	④	⑤	⑥	⑦
B88. My manager evaluates my performance at work annually.	①	②	③	④	⑤	⑥	⑦
B89. My manager helps me in improving my performance so that my actual job outcomes match with the established standards.	①	②	③	④	⑤	⑥	⑦
B90. I communicate easily and freely with my colleagues.	①	②	③	④	⑤	⑥	⑦
B91. I communicate easily and freely with my manager.	①	②	③	④	⑤	⑥	⑦
B92. The necessary equipment, tools, and materials that I need to do my job are available to me.	①	②	③	④	⑤	⑥	⑦
B93. We have the most modern equipment and tools to do the jobs in our department.	①	②	③	④	⑤	⑥	⑦
B94. In my department, there is a sufficient number of skillful people to do the job.	①	②	③	④	⑤	⑥	⑦
B95. In my department, people possess the necessary skills to the job.	①	②	③	④	⑤	⑥	⑦
B96. In my department, people have highly specialised skills that are valuable to the organisation.	①	②	③	④	⑤	⑥	⑦
B97. Policies, procedures and rules and regulations regarding my job are sufficient.	①	②	③	④	⑤	⑥	⑦
B98. The existing policies, procedures and rules and regulations are clear to me and easy to follow.	①	②	③	④	⑤	⑥	⑦
B99. The existing work processes and procedures are designed in a way that leads to achieving my job outcomes and objectives.	①	②	③	④	⑤	⑥	⑦
B100. My manager identifies with me the training and staff development opportunities that I require for my work.	①	②	③	④	⑤	⑥	⑦

	Strongly Disagree 1	Disagree 2	Slightly Disagree 3	Neither disagree nor agree 4	Slightly Agree 5	Agree 6	Strongly Agree 7
B101. Since I joined my organisation, I have been given the training and development opportunities that I needed to do my job.	①	②	③	④	⑤	⑥	⑦
B102. My organisation uses financial incentives to improve productivity.	①	②	③	④	⑤	⑥	⑦
B103. There are clear policies for paying salaries, raises and bonuses.	①	②	③	④	⑤	⑥	⑦
B104. My organisation pays me fairly compared to other employees.	①	②	③	④	⑤	⑥	⑦
B105. My annual pay raise is based on my overall performance during the year.	①	②	③	④	⑤	⑥	⑦
B106. My organisation provides non-financial incentives (e.g., recognition, involvement, empowerment, authority; time off, … etc) based on employees' performance.	①	②	③	④	⑤	⑥	⑦
B107. My organisation punishes employees who achieve poor results.	①	②	③	④	⑤	⑥	⑦
B108. My organisation's products/services are better than those of competitors.	①	②	③	④	⑤	⑥	⑦
B109. There are many customers who are loyal to my organisation's products/services.	①	②	③	④	⑤	⑥	⑦
B110. The perception of outside people about my organisation's products/services makes me satisfied.	①	②	③	④	⑤	⑥	⑦
B111. My organisation cares about the society.	①	②	③	④	⑤	⑥	⑦
B112. Outside people prefer to deal more with my organisation than other organisations.	①	②	③	④	⑤	⑥	⑦
B113. External people (customers, local organisations, …etc.) hold a positive image about my organisation.	①	②	③	④	⑤	⑥	⑦
B114. The positive image held by external people about my organisation makes me feel more satisfied to work here.	①	②	③	④	⑤	⑥	⑦
B115. I experience a strong sense of belonging to my organisation.	①	②	③	④	⑤	⑥	⑦
B116. I feel proud to work for this organisation.	①	②	③	④	⑤	⑥	⑦
B117. My organisation has a good reputation.	①	②	③	④	⑤	⑥	⑦
B118. External people see my organisation as a prestigious organisation to work for.	①	②	③	④	⑤	⑥	⑦
B119. My organisation pays salaries that are comparable to other organisations in this sector.	①	②	③	④	⑤	⑥	⑦
B120. My organisation provides sufficient benefits compared to other organisations.	①	②	③	④	⑤	⑥	⑦

Part C: Performance Factors

The following factors may be important in improving employees' performance in the workplace. Please, indicate the importance level for each fact or according to your perception by ticking (✓) a value from 1 to 7 on a scale of importance level (being 1=less important and 7=very important).

Performance Factor		Less Important 1	2	3	4	5	6	Very Important 7
C1.	Employee's ability	①	②	③	④	⑤	⑥	⑦
C2.	Employee's confidence	①	②	③	④	⑤	⑥	⑦
C3.	Employee's intelligence	①	②	③	④	⑤	⑥	⑦
C4.	Employee's knowledge and skills	①	②	③	④	⑤	⑥	⑦
C5.	Employee-organisation fit (match)	①	②	③	④	⑤	⑥	⑦
C6.	Socialisation activities with colleagues	①	②	③	④	⑤	⑥	⑦
C7.	Trust relationship with colleagues and manager	①	②	③	④	⑤	⑥	⑦
C8.	Employee's commitment	①	②	③	④	⑤	⑥	⑦
C9.	Openness between manager and employees	①	②	③	④	⑤	⑥	⑦
C10.	Contact between manager and employees	①	②	③	④	⑤	⑥	⑦
C11.	Employee's satisfaction with the job	①	②	③	④	⑤	⑥	⑦
C12.	Employee's needs fulfillment	①	②	③	④	⑤	⑥	⑦
C13.	Career development opportunities	①	②	③	④	⑤	⑥	⑦
C14.	Supportive work environment	①	②	③	④	⑤	⑥	⑦
C15.	Availability of clear strategies	①	②	③	④	⑤	⑥	⑦
C16.	Organisational orientation toward external demands	①	②	③	④	⑤	⑥	⑦
C17.	Leadership of middle management	①	②	③	④	⑤	⑥	⑦
C18.	Leadership of top management	①	②	③	④	⑤	⑥	⑦
C19.	Availability of long-term and short term plans	①	②	③	④	⑤	⑥	⑦
C20.	Person-job fit (match)	①	②	③	④	⑤	⑥	⑦
C21.	Empowerment	①	②	③	④	⑤	⑥	⑦
C22.	Integrated processes and functions	①	②	③	④	⑤	⑥	⑦
C23.	Availability of control mechanisms	①	②	③	④	⑤	⑥	⑦
C24.	Availability of the necessary information	①	②	③	④	⑤	⑥	⑦
C25.	Receiving feedback about the job	①	②	③	④	⑤	⑥	⑦
C26.	Open communication	①	②	③	④	⑤	⑥	⑦
C27.	Availability of sufficient tools and equipment	①	②	③	④	⑤	⑥	⑦
C28.	Availability of sufficient human resources	①	②	③	④	⑤	⑥	⑦
C29.	Availability of clear systems, procedures and rules	①	②	③	④	⑤	⑥	⑦
C30.	Training opportunities	①	②	③	④	⑤	⑥	⑦
C31.	Financial incentives	①	②	③	④	⑤	⑥	⑦
C32.	Non-financial incentives (e.g., recognition)	①	②	③	④	⑤	⑥	⑦
C33.	Organisation's external identity, image and prestige	①	②	③	④	⑤	⑥	⑦
C34.	Organisation's care about the society	①	②	③	④	⑤	⑥	⑦
C35.	Competitive pay with other organisations	①	②	③	④	⑤	⑥	⑦

Other Comments:

APPENDIX F
DESCRIPTIVE STATISTICS

Item	Frequency %							Mean		Std. Dev.	Skewness		Kurtosis	
	1	2	3	4	5	6	7	Statistic	S. E.	Statistic	Statistic	S.E.	Statistic	S.E.
B1	0.92	3.23	0.92	2.76	10.14	44.24	37.79	6.018	0.081	1.194	-2.078	0.165	5.060	0.329
B2	0.92	0.46	1.38	1.38	5.99	47.93	41.94	6.226	0.065	0.957	-2.544	0.165	9.833	0.329
B3	0.00	0.00	0.46	3.23	5.99	40.09	50.23	6.359	0.054	0.799	-1.674	0.165	4.452	0.329
B4	6.45	8.76	4.15	2.76	17.05	36.87	23.96	5.217	0.123	1.819	-1.131	0.165	0.107	0.329
B5	0.92	1.84	2.76	2.76	9.22	50.23	32.26	5.972	0.078	1.142	-2.015	0.165	4.992	0.329
B6	0.46	0.92	1.84	4.61	9.68	45.62	36.87	6.065	0.071	1.039	-1.781	0.165	4.423	0.329
B7	1.38	1.84	3.69	12.44	25.35	43.78	11.52	5.359	0.081	1.198	-1.197	0.165	1.884	0.329
B8	0.92	2.30	3.69	15.67	18.43	34.56	24.42	5.498	0.090	1.320	-0.916	0.165	0.608	0.329
B9	0.00	0.00	1.84	2.30	6.91	38.25	50.69	6.336	0.058	0.851	-1.661	0.165	3.445	0.329
B10	0.00	0.00	1.84	2.30	6.91	38.25	50.69	6.447	0.056	0.821	-2.310	0.165	9.177	0.329
B11	2.30	1.84	0.92	3.69	4.61	38.25	48.39	6.147	0.086	1.272	-2.407	0.165	6.302	0.329
B12	0.92	0.92	2.30	5.53	13.82	41.01	35.48	5.954	0.078	1.142	-1.642	0.165	3.587	0.329
B13	0.92	0.00	1.38	3.69	11.52	39.17	43.32	6.157	0.069	1.015	-1.926	0.165	5.815	0.329
B14	0.92	2.30	2.76	1.84	9.68	40.09	42.40	6.069	0.082	1.202	-2.040	0.165	4.702	0.329
B15	2.30	5.99	4.15	9.22	15.67	34.56	28.11	5.461	0.106	1.560	-1.166	0.165	0.664	0.329
B16	2.76	5.07	2.76	10.60	14.75	43.78	20.28	5.419	0.101	1.483	-1.317	0.165	1.270	0.329
B17	0.46	0.46	2.30	1.84	6.91	45.62	42.40	6.207	0.065	0.961	-2.130	0.165	6.657	0.329
B18	0.46	2.30	4.61	13.82	18.89	40.09	19.82	5.479	0.085	1.255	-0.924	0.165	0.596	0.329
B19	4.15	11.98	4.61	11.98	25.81	32.72	8.76	4.765	0.111	1.637	-0.798	0.165	-0.344	0.329
B20	0.00	1.38	1.38	5.07	8.76	55.30	28.11	5.995	0.065	0.960	-1.671	0.165	4.031	0.329
B21	11.98	17.97	12.90	15.21	22.58	15.67	3.69	3.802	0.119	1.757	-0.092	0.165	-1.164	0.329
B22	1.84	0.92	2.30	11.06	21.20	41.47	21.20	5.581	0.084	1.230	-1.325	0.165	2.480	0.329
B23	2.30	4.15	4.61	6.45	20.74	42.86	18.89	5.433	0.096	1.413	-1.348	0.165	1.554	0.329
B24	5.53	8.29	4.15	11.98	29.49	27.65	12.90	4.862	0.112	1.644	-0.868	0.165	0.010	0.329
B25	0.00	0.92	0.46	1.38	11.52	50.69	35.02	6.157	0.056	0.830	-1.626	0.165	5.443	0.329
B26	0.00	0.92	0.92	2.30	10.14	44.70	41.01	6.198	0.061	0.894	-1.698	0.165	4.643	0.329
B27	7.37	5.53	4.15	8.29	16.13	34.10	24.42	5.203	0.122	1.794	-1.105	0.165	0.216	0.329
B28	7.83	2.76	5.99	5.99	11.52	35.94	29.95	5.382	0.122	1.797	-1.274	0.165	0.603	0.329
B29	6.45	6.45	5.53	7.37	16.13	37.33	20.74	5.152	0.120	1.761	-1.070	0.165	0.122	0.329
B30	5.53	6.91	5.99	6.45	14.29	40.09	20.74	5.203	0.118	1.736	-1.109	0.165	0.186	0.329
B31	5.99	4.61	3.69	6.45	7.37	46.08	25.81	5.461	0.115	1.697	-1.447	0.165	1.128	0.329
B32	0.00	0.46	0.46	1.38	4.15	44.24	49.31	6.392	0.051	0.744	-1.933	0.165	7.081	0.329
B33	3.69	6.91	3.23	8.76	14.29	37.79	25.35	5.378	0.111	1.640	-1.208	0.165	0.627	0.329
B34	7.83	5.53	6.45	6.91	20.74	32.26	20.28	5.051	0.122	1.796	-0.987	0.165	-0.032	0.329
B35	0.46	2.30	0.46	4.15	10.14	47.00	35.48	6.041	0.073	1.073	-1.967	0.165	5.267	0.329
B36	7.37	5.53	3.69	7.83	12.90	39.17	23.50	5.249	0.121	1.785	-1.193	0.165	0.379	0.329
B37	14.75	13.82	8.29	9.68	23.96	22.12	7.37	4.101	0.132	1.939	-0.321	0.165	-1.236	0.329
B38	5.07	7.83	9.68	19.35	17.51	31.80	8.76	4.668	0.111	1.633	-0.612	0.165	-0.497	0.329
B39	0.92	0.00	0.46	3.23	7.37	33.18	54.84	6.350	0.065	0.951	-2.415	0.165	8.906	0.329
B40	33.64	24.42	6.91	11.06	7.83	12.90	3.23	2.866	0.130	1.921	0.690	0.165	-0.927	0.329
B41	5.53	19.82	11.98	19.35	15.21	23.04	5.07	4.083	0.117	1.717	-0.113	0.165	-1.165	0.329
B42	9.22	20.74	10.14	21.66	18.43	17.97	1.84	3.806	0.114	1.675	-0.108	0.165	-1.149	0.329
B43	18.43	17.51	10.14	24.42	15.67	10.14	3.69	3.465	0.119	1.756	0.105	0.165	-1.038	0.329

Item	Frequency %							Mean		Std. Dev.	Skewness		Kurtosis	
	1	2	3	4	5	6	7	Statistic	S. E.	Statistic	Statistic	S.E.	Statistic	S.E.
B44	11.98	22.58	12.90	10.14	18.89	19.82	3.69	3.756	0.125	1.838	0.013	0.165	-1.355	0.329
B45	5.53	9.68	8.76	14.29	22.12	31.80	7.83	4.645	0.113	1.663	-0.677	0.165	-0.526	0.329
B46	7.37	11.06	11.52	12.44	20.74	31.34	5.53	4.442	0.118	1.731	-0.553	0.165	-0.856	0.329
B47	2.30	5.99	5.99	14.75	17.05	30.88	23.04	5.230	0.107	1.576	-0.852	0.165	-0.013	0.329
B48	6.45	5.07	6.91	11.98	17.97	30.41	21.20	5.060	0.119	1.746	-0.899	0.165	-0.082	0.329
B49	1.84	5.07	5.99	20.28	23.04	34.10	9.68	4.986	0.094	1.389	-0.770	0.165	0.218	0.329
B50	24.42	19.82	9.22	14.75	16.13	13.36	2.30	3.276	0.127	1.865	0.231	0.165	-1.307	0.329
B51	0.46	0.00	2.30	1.84	11.98	50.69	32.72	6.078	0.062	0.917	-1.756	0.165	5.538	0.329
B52	3.23	1.84	1.84	11.98	23.04	38.25	19.82	5.438	0.093	1.367	-1.346	0.165	2.133	0.329
B53	2.76	8.29	11.52	10.14	26.73	32.26	8.29	4.797	0.105	1.541	-0.720	0.165	-0.351	0.329
B54	2.76	11.06	8.76	11.06	23.96	32.26	10.14	4.797	0.109	1.612	-0.691	0.165	-0.510	0.329
B55	1.84	5.53	6.91	16.59	18.89	39.63	10.60	5.065	0.097	1.435	-0.872	0.165	0.161	0.329
B56	2.76	5.07	5.53	14.75	17.97	40.09	13.82	5.157	0.101	1.486	-1.008	0.165	0.467	0.329
B57	1.84	5.99	6.45	26.27	19.82	32.26	7.37	4.825	0.095	1.397	-0.610	0.165	-0.093	0.329
B58	11.98	4.61	7.83	12.44	14.29	34.10	14.75	4.737	0.130	1.910	-0.766	0.165	-0.602	0.329
B59	10.14	6.45	4.15	7.83	19.35	33.64	18.43	4.945	0.128	1.880	-0.953	0.165	-0.250	0.329
B60	11.06	8.29	5.53	13.82	22.58	29.03	9.68	4.544	0.124	1.833	-0.685	0.165	-0.656	0.329
B61	11.52	8.76	4.15	11.98	19.82	34.10	9.68	4.608	0.127	1.873	-0.758	0.165	-0.664	0.329
B62	6.45	8.29	8.76	15.21	17.05	33.18	11.06	4.719	0.117	1.729	-0.681	0.165	-0.550	0.329
B63	5.53	5.53	2.30	10.14	13.36	45.16	17.97	5.276	0.111	1.638	-1.307	0.165	0.901	0.329
B64	7.37	4.15	6.45	23.96	18.43	26.73	12.90	4.737	0.113	1.667	-0.678	0.165	-0.173	0.329
B65	3.69	6.45	5.53	28.11	23.04	19.82	13.36	4.733	0.104	1.531	-0.471	0.165	-0.153	0.329
B66	4.61	7.37	10.60	19.82	25.35	21.66	10.60	4.613	0.108	1.589	-0.491	0.165	-0.405	0.329
B67	5.07	8.29	7.83	17.97	18.43	32.26	10.14	4.737	0.112	1.650	-0.678	0.165	-0.423	0.329
B68	5.07	5.53	5.99	21.20	19.82	30.88	11.52	4.839	0.108	1.586	-0.758	0.165	-0.028	0.329
B69	5.53	5.53	4.61	38.25	13.82	25.81	6.45	4.525	0.102	1.500	-0.514	0.165	-0.041	0.329
B70	6.45	6.45	5.53	31.80	18.89	25.81	5.07	4.479	0.104	1.534	-0.609	0.165	-0.128	0.329
B71	5.99	8.76	5.53	20.28	17.05	34.56	7.83	4.687	0.112	1.656	-0.730	0.165	-0.381	0.329
B72	2.76	5.99	3.69	9.68	14.29	38.71	24.88	5.424	0.106	1.562	-1.215	0.165	0.789	0.329
B73	8.76	8.76	14.75	10.60	26.27	25.35	5.53	4.350	0.117	1.718	-0.512	0.165	-0.807	0.329
B74	6.91	10.14	4.15	6.91	14.75	43.78	13.36	4.972	0.122	1.800	-1.006	0.165	-0.232	0.329
B75	7.83	6.45	5.99	8.29	13.36	42.86	15.21	5.023	0.122	1.791	-1.040	0.165	-0.059	0.329
B76	5.07	5.53	4.61	7.83	20.74	38.71	17.51	5.198	0.110	1.622	-1.178	0.165	0.652	0.329
B77	5.07	5.07	5.99	15.67	20.28	39.63	8.29	4.931	0.105	1.549	-1.009	0.165	0.341	0.329
B78	7.37	6.91	10.14	17.97	26.27	24.88	6.45	4.493	0.110	1.628	-0.628	0.165	-0.391	0.329
B79	3.69	7.37	5.99	32.26	20.74	24.88	5.07	4.539	0.098	1.437	-0.533	0.165	-0.082	0.329
B80	7.37	10.60	7.83	19.35	22.58	29.49	2.76	4.387	0.111	1.638	-0.633	0.165	-0.637	0.329
B81	6.45	10.60	6.45	19.82	17.05	33.18	6.45	4.558	0.115	1.688	-0.634	0.165	-0.624	0.329
B82	8.76	8.29	6.45	23.96	14.75	29.95	7.83	4.488	0.118	1.735	-0.571	0.165	-0.629	0.329
B83	1.84	5.53	3.23	18.89	25.35	32.26	12.90	5.088	0.095	1.397	-0.847	0.165	0.486	0.329
B84	4.61	3.69	7.37	10.60	28.11	38.25	7.37	4.982	0.100	1.469	-1.136	0.165	0.813	0.329
B85	0.92	5.53	6.45	8.76	20.74	37.79	19.82	5.355	0.097	1.430	-1.018	0.165	0.446	0.329
B86	11.52	5.99	4.61	13.82	22.12	31.80	10.14	4.650	0.124	1.822	-0.813	0.165	-0.428	0.329
B87	11.98	7.83	5.07	17.97	22.58	26.73	7.83	4.429	0.123	1.809	-0.634	0.165	-0.673	0.329
B88	5.99	3.69	2.76	15.67	15.21	39.17	17.51	5.180	0.110	1.622	-1.149	0.165	0.704	0.329
B89	9.22	7.37	5.07	18.43	21.20	29.03	9.68	4.608	0.119	1.750	-0.713	0.165	-0.438	0.329
B90	0.92	0.46	3.23	2.30	5.99	46.54	40.55	6.138	0.072	1.067	-2.195	0.165	6.295	0.329

Item	Frequency %							Mean		Std. Dev.	Skewness		Kurtosis	
	1	2	3	4	5	6	7	Statistic	S. E.	Statistic	Statistic	S.E.	Statistic	S.E.
B91	3.69	5.07	4.15	4.61	16.13	38.71	27.65	5.512	0.107	1.581	-1.400	0.165	1.295	0.329
B92	7.83	7.83	9.22	9.68	24.88	30.41	10.14	4.677	0.118	1.745	-0.741	0.165	-0.479	0.329
B93	12.90	10.60	8.76	10.14	29.49	23.04	5.07	4.221	0.124	1.820	-0.523	0.165	-0.961	0.329
B94	1.84	6.45	6.91	6.91	27.19	40.55	10.14	5.134	0.097	1.423	-1.105	0.165	0.642	0.329
B95	0.92	3.69	7.83	6.91	23.50	48.39	8.76	5.286	0.086	1.273	-1.229	0.165	1.128	0.329
B96	1.84	3.69	7.37	8.29	22.58	44.70	11.52	5.263	0.092	1.361	-1.187	0.165	1.051	0.329
B97	6.45	10.60	8.76	13.82	27.65	25.35	7.37	4.512	0.114	1.673	-0.604	0.165	-0.589	0.329
B98	5.99	10.14	5.07	17.05	28.11	27.19	6.45	4.585	0.110	1.617	-0.732	0.165	-0.313	0.329
B99	4.15	9.22	9.22	17.05	25.35	30.41	4.61	4.599	0.105	1.540	-0.687	0.165	-0.378	0.329
B100	14.75	13.36	6.45	18.89	22.58	18.43	5.53	3.986	0.125	1.845	-0.288	0.165	-1.106	0.329
B101	10.60	16.13	8.29	9.68	20.74	26.73	7.83	4.253	0.129	1.902	-0.373	0.165	-1.206	0.329
B102	13.82	16.13	8.76	22.12	22.12	15.21	1.84	3.756	0.116	1.711	-0.208	0.165	-1.116	0.329
B103	27.19	22.12	8.76	18.43	13.36	7.37	2.76	3.018	0.120	1.774	0.444	0.165	-0.982	0.329
B104	21.20	19.82	8.29	17.05	16.59	13.82	3.23	3.424	0.127	1.865	0.144	0.165	-1.287	0.329
B105	20.74	19.35	7.37	23.96	13.36	11.98	3.23	3.387	0.123	1.805	0.161	0.165	-1.146	0.329
B106	14.75	19.82	8.29	28.57	16.59	8.76	3.23	3.516	0.113	1.670	0.050	0.165	-0.933	0.329
B107	12.90	19.35	9.22	29.49	14.29	11.06	3.69	3.608	0.114	1.675	0.052	0.165	-0.898	0.329
B108	2.76	6.45	6.91	23.96	21.20	29.49	9.22	4.797	0.100	1.474	-0.617	0.165	-0.128	0.329
B109	1.38	3.23	5.99	25.35	19.82	36.87	7.37	4.991	0.088	1.295	-0.694	0.165	0.215	0.329
B110	4.15	8.29	9.68	17.05	26.73	28.57	5.53	4.618	0.104	1.529	-0.675	0.165	-0.302	0.329
B111	2.76	4.15	3.69	16.59	19.82	41.01	11.98	5.175	0.096	1.413	-1.089	0.165	0.915	0.329
B112	1.38	3.69	5.99	31.80	24.42	27.19	5.53	4.779	0.085	1.250	-0.478	0.165	0.212	0.329
B113	2.76	8.29	5.07	22.12	24.88	29.95	6.91	4.756	0.099	1.463	-0.716	0.165	-0.037	0.329
B114	2.30	6.91	4.61	21.20	19.35	33.18	12.44	4.977	0.101	1.492	-0.745	0.165	-0.013	0.329
B115	1.84	2.30	4.61	14.29	21.20	40.55	15.21	5.332	0.090	1.320	-1.083	0.165	1.183	0.329
B116	1.84	2.76	5.53	11.06	23.04	40.09	15.67	5.336	0.091	1.341	-1.122	0.165	1.182	0.329
B117	1.84	5.07	5.53	16.59	19.82	38.71	12.44	5.134	0.096	1.419	-0.915	0.165	0.373	0.329
B118	3.23	6.45	5.53	17.05	22.58	34.56	10.60	4.954	0.102	1.505	-0.866	0.165	0.178	0.329
B119	11.06	14.29	9.22	17.51	21.20	21.66	5.07	4.088	0.121	1.789	-0.309	0.165	-1.067	0.329
B120	8.76	16.13	12.44	17.97	18.43	22.58	3.69	4.037	0.117	1.729	-0.220	0.165	-1.109	0.329

APPENDIX G
RELIABILITY TEST

Cronbach Alpha Coefficients for the Research Constructs

Construct	No. of Items	Cronbach alpha coefficient (α)	Cronbach alpha coefficient (α) if item deleted
Organisational performance	**2**	**0.7553**	
B7: Overall, my organisation achieves its goals and objectives.			--
B8: Overall, my organisation's performance is very high compared to similar organisations.			--
Individual performance	**2**	**0.5514**	
B5: The results I produce at my work are in accordance with the set and targeted standards.			--
B25: I complete my job tasks within the deadline and in an acceptable manner.			--
Motivation	**3**	**0.6703**	
B1: Overall, I am highly energised to put in extra effort at my work.			0.5907
B2: Overall, my efforts at my work are highly directed towards the organisational goals.			0.5911
B3: Overall, I have the willingness to maintain my efforts to reach organisational goals.			0.6329
Capacity to Perform	**4**	**0.6610**	
B9: I have a sufficient level of confidence that allows me to do my job properly.			0.4973
B10: I feel confident about my ability to improve my knowledge and skills to meet with new requirements related to my job.			0.6013
B12: Performing my job properly requires a high level of mental ability.			0.6765
B17: Performing my job properly requires a high level of mental ability.			0.6012
Motivation and Performance Antecedents	**30**	**0.9429**	
Work Environment	**8**	**0.8103**	
B19: My job and working conditions match with my preferences.			0.7674
B24: I socialise with my colleagues outside our organisation.			0.8123
B42: I am satisfied with the level of clarity for my career advancement in my company.			0.7691
B44: My work environment is free from too many interferences and disruptions.			0.7644
B46: My work conditions are comfortable.			0.7580
B53: I feel highly satisfied with my work environment.			0.7631
B85: The availability of the correct information on time makes it easy for me to communicate with others and do my job better and quicker.			0.7837

B101: Since I joined my organisation, I have been given the training and development opportunities that I needed to do my job.			0.8079
Relations with Manager	**6**	**0.9330**	
B29: My manager is generally available when he or she is needed.			0.9251
B31: I have a good relationship with my manager.			0.9161
B34: My manager responds positively to my concerns.			0.9134
B48: My manager is open and listens to my ideas and suggestions.			0.9149
B63: My manager perceives that my work is meaningful and important.			0.9242
B81: I communicate easily and freely with my manager.			0.9290
Leadership of Top Management	**6**	**0.8959**	
B64: My organisation's top management has a clear vision of the future.			0.8614
B65: My organisation's top management has made changes that are positive for the organisation.			0.8748
B66: My organisation's top management proactively responds to important internal issues.			0.8719
B68: Top management of my organisation contributes a lot and pays a great deal of attention to the main goals and objectives of the organisation.			0.8607
B70: My organisation identifies in its strategic plans the necessary activities, resources, cost, time, staff support, … etc. that are required to achieve long-term goals and objectives of the organisation.			0.8819
B83: I know and understand the long-term goals and objectives of my organisation.			0.9087
Clarity of Processes	**2**	**0.8355**	
B97: Policies, procedures and rules and regulations regarding my job are sufficient.			--
B99: The existing work processes and procedures are designed in a way that leads to achieving my job outcomes and objectives.			--
Resources	**2**	**0.8255**	
B92: The necessary equipment, tools, and materials that I need to do my job are available to me.			--
B93: We have the most modern equipment and tools to do the jobs in our department.			--
Financial Benefits	**2**	**0.7368**	
B103: There are clear policies for paying salaries, raises and bonuses.			--
B105: My annual pay raise is based on my overall performance during the year.			--
External perception and identity	**4**	**0.8943**	
B112: Outside people prefer to deal more with my organisation than other organisations.			0.8937
B113: External people (customers, local organisations, …etc.) hold a positive image about my organisation.			0.8457
B114: The positive image held by external people about my organisation makes me feel more satisfied to work here.			0.8429
B117: My organisation has a good reputation.			0.8671

APPENIDIX H
AMOS ANALUSIS RESULTS FOR THE MOTIVATION MEASUREMENT MODEL

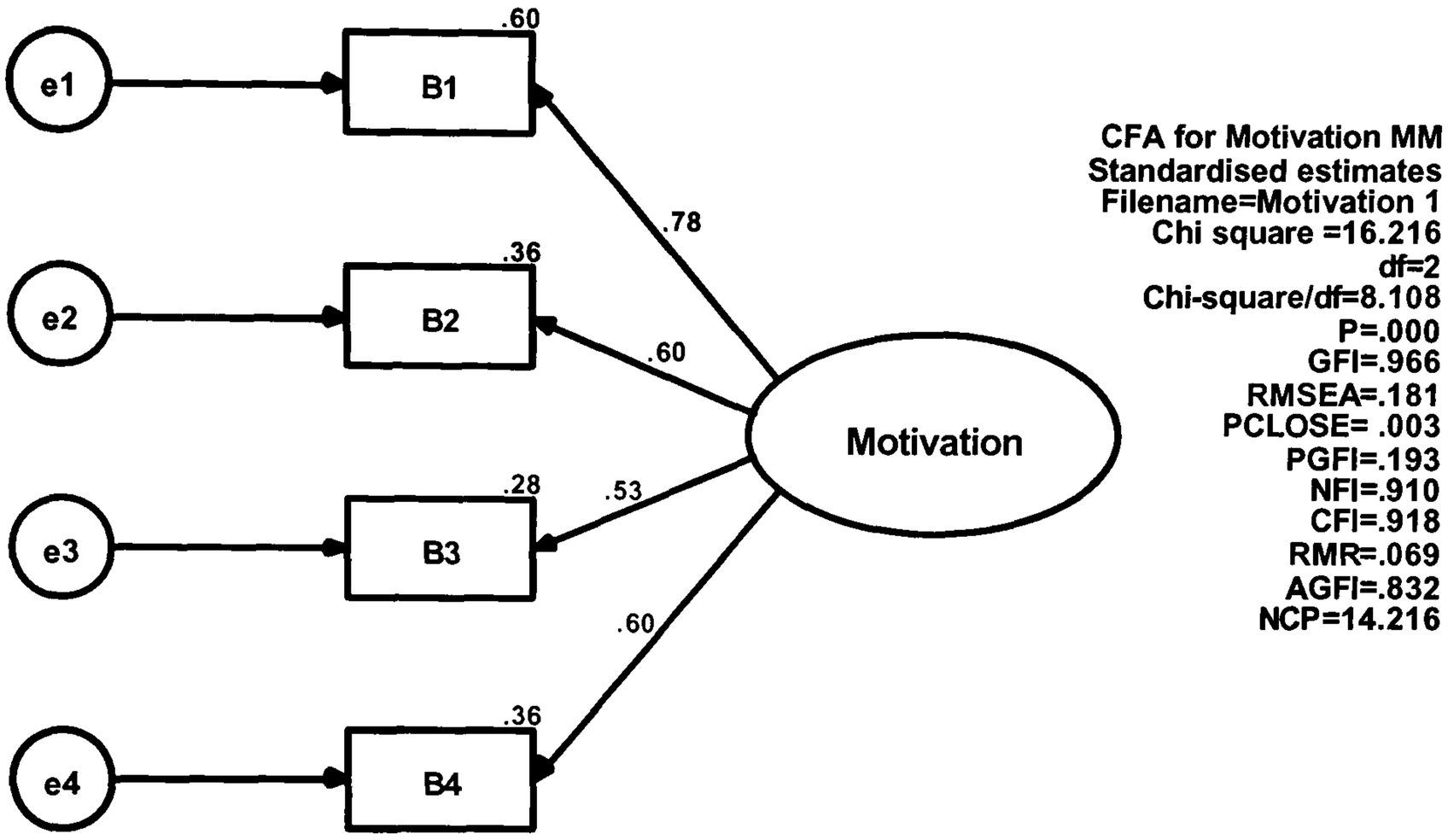


Figure H.1 The Motivation Measurement Model with Standardised Estimates (Model 1)

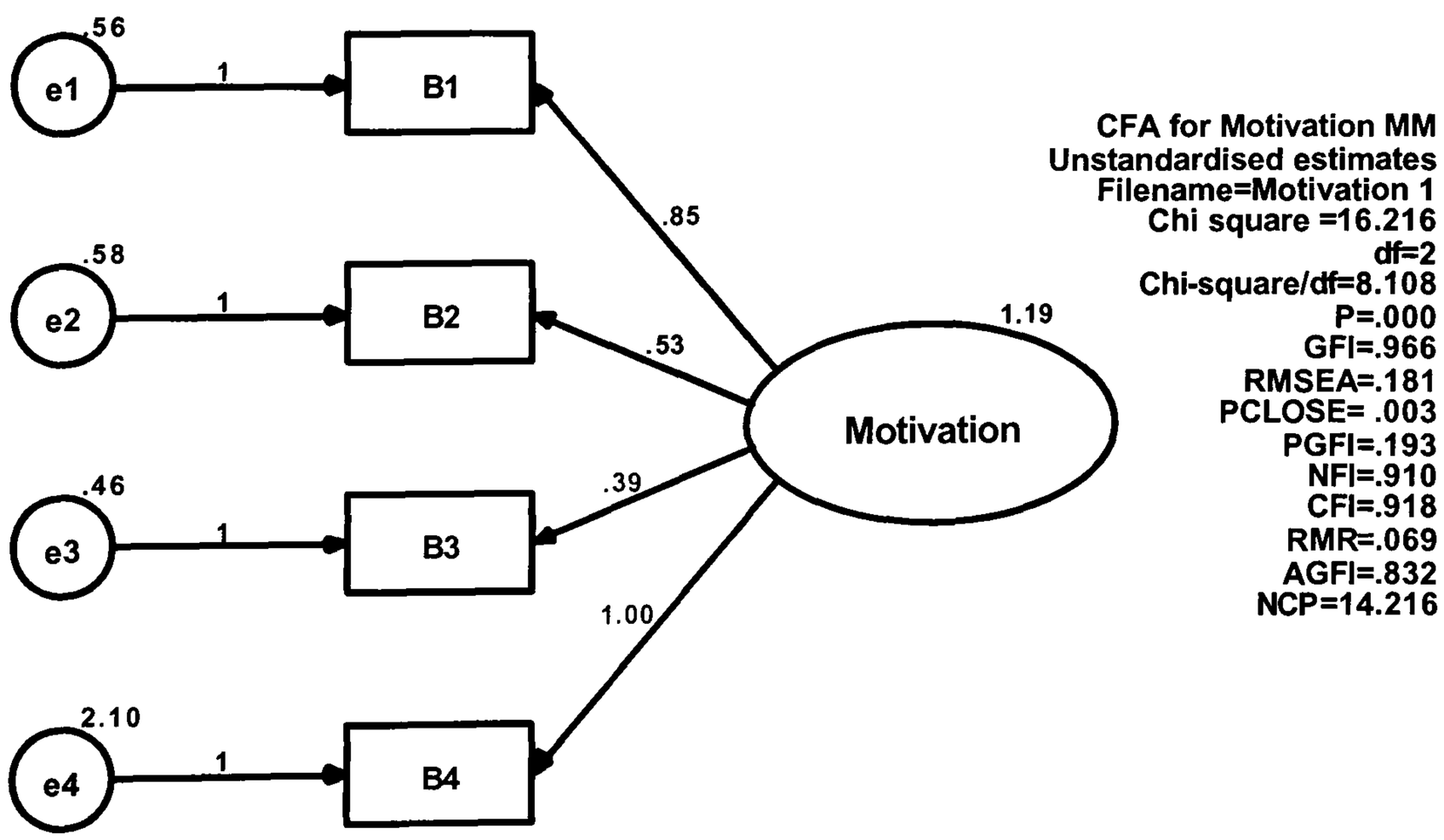


Figure H.2 The Motivation Measurement Model with Unstandardised Estimates (Model 1)

Table H.1 Goodness-of-Fit Statistics for the Motivation Measurement Model (Model 1)

Fit Measure	Default model	Saturated	Independence	Macro
Discrepancy	16.216	0	179.322	CMIN
Degrees of freedom	2	0	6	DF
P	0		0	P
Number of parameters	8	10	4	NPAR
Discrepancy / df	8.108		29.887	CMINDF
RMR	0.069	0	0.464	RMR
GFI	0.966	1	0.673	GFI
Adjusted GFI	0.832		0.455	AGFI
Parsimony-adjusted GFI	0.193		0.404	PGFI
Normed fit index	0.91	1	0	NFI
Relative fit index	0.729		0	RFI
Incremental fit index	0.92	1	0	IFI
Tucker-Lewis index	0.754		0	TLI
Comparative fit index	0.918	1	0	CFI
Parsimony ratio	0.333	0	1	PRATIO
Parsimony-adjusted NFI	0.303	0	0	PNFI
Parsimony-adjusted CFI	0.306	0	0	PCFI
Noncentrality parameter estimate	14.216	0	173.322	NCP
NCP lower bound	4.902	0	133.289	NCPLO
NCP upper bound	30.978	0	220.78	NCPHI
FMIN	0.075	0	0.83	FMIN
F0	0.066	0	0.802	F0
F0 lower bound	0.023	0	0.617	F0LO
F0 upper bound	0.143	0	1.022	F0HI
RMSEA	0.181		0.366	RMSEA
RMSEA lower bound	0.107		0.321	RMSEALO
RMSEA upper bound	0.268		0.413	RMSEAHI
P for test of close fit	0.003		0	PCLOSE
Akaike information criterion (AIC)	32.216	20	187.322	AIC
Browne-Cudeck criterion	32.595	20.474	187.512	BCC
Bayes information criterion	70.345	67.662	206.387	BIC
Consistent AIC	67.255	63.799	204.842	CAIC
Expected cross validation index	0.149	0.093	0.867	ECVI
ECVI lower bound	0.106	0.093	0.682	ECVILO
ECVI upper bound	0.227	0.093	1.087	ECVIHI
MECVI	0.151	0.095	0.868	MECVI
Hoelter .05 index	80		16	HFIVE
Hoelter .01 index	123		21	HONE

Table H.2 Modification Indexes for the Motivation Measurement Model (Model 1)

Covariances:			M.I.	Par Change
e3	<---------->	e1	4.641	-0.096
e3	<---------->	e2	6.856	0.103
e4	<---------->	e2	6.866	-0.227
Regression Weights:			M.I.	Par Change
B2	<----------	B3	4.529	0.149

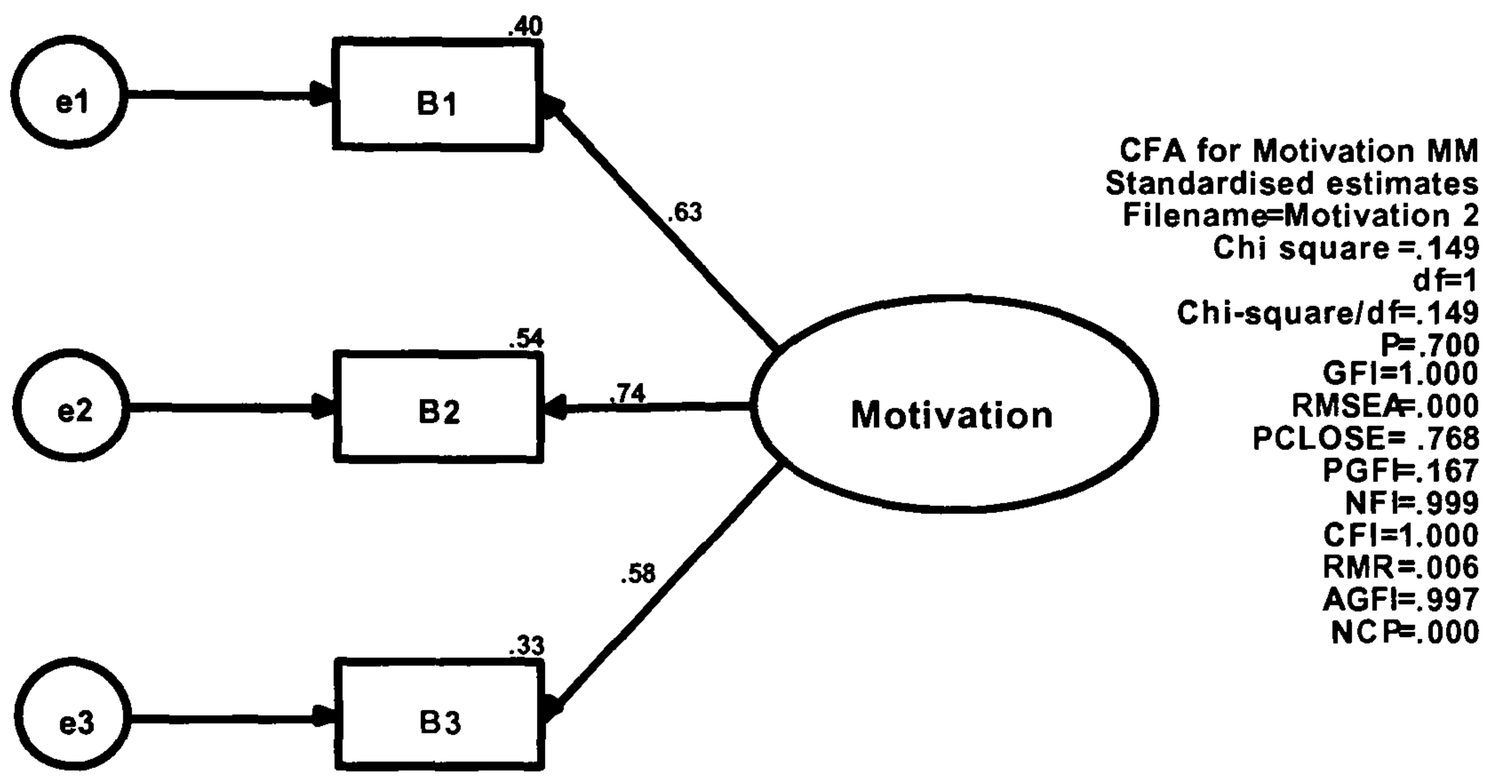


Figure H.3 The Motivation Measurement Model with Standardised Estimates (Model 2)

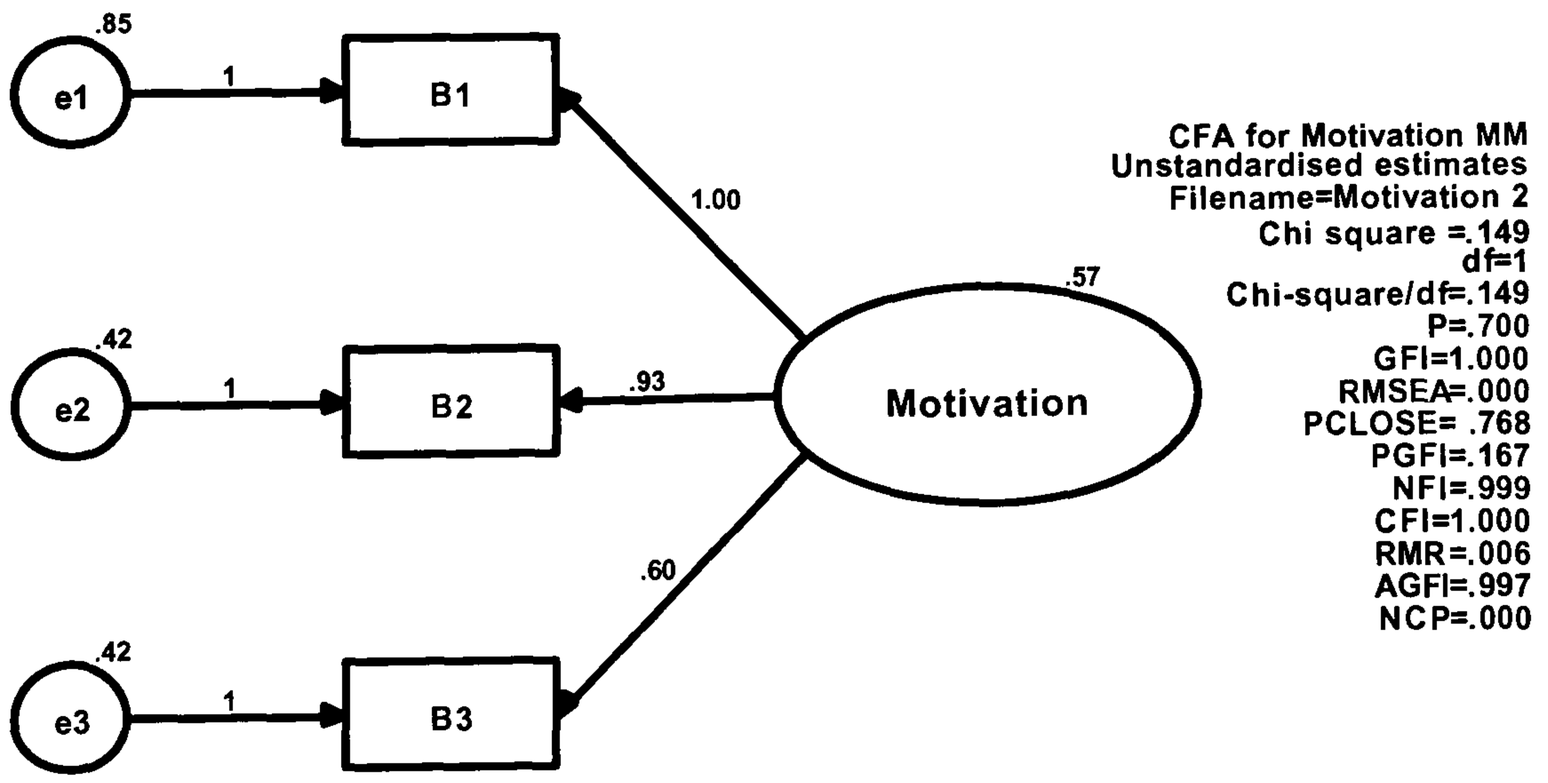


Figure H.4 The Motivation Measurement Model with Unstandardised Estimates (Model 2)

Table H.3 Goodness-of-Fit Statistics for the Motivation Measurement Model (Model 2)

Fit Measure	Default model	Saturated	Independence	Macro
Discrepancy	0.149	0	106.091	CMIN
Degrees of freedom	1	0	3	DF
P	0.7		0	P
Number of parameters	5	6	3	NPAR
Discrepancy / df	0.149		35.364	CMINDF
RMR	0.006	0	0.291	RMR
GFI	1	1	0.739	GFI
Adjusted GFI	0.997		0.478	AGFI
Parsimony-adjusted GFI	0.167		0.369	PGFI
Normed fit index	0.999	1	0	NFI
Relative fit index	0.996		0	RFI
Incremental fit index	1.008	1	0	IFI
Tucker-Lewis index	1.025		0	TLI
Comparative fit index	1	1	0	CFI
Parsimony ratio	0.333	0	1	PRATIO
Parsimony-adjusted NFI	0.333	0	0	PNFI
Parsimony-adjusted CFI	0.333	0	0	PCFI
Noncentrality parameter estimate	0	0	103.091	NCP
NCP lower bound	0	0	73.077	NCPLO
NCP upper bound	3.766	0	140.526	NCPHI
FMIN	0.001	0	0.491	FMIN
F0	0	0	0.477	F0
F0 lower bound	0	0	0.338	F0LO
F0 upper bound	0.017	0	0.651	F0HI
RMSEA	0		0.399	RMSEA
RMSEA lower bound	0		0.336	RMSEALO
RMSEA upper bound	0.132		0.466	RMSEAHI
P for test of close fit	0.768		0	PCLOSE
Akaike information criterion (AIC)	10.149	12	112.091	AIC
Browne-Cudeck criterion	10.338	12.226	112.204	BCC
Bayes information criterion	32.541	38.871	125.527	BIC
Consistent AIC	32.048	38.279	125.231	CAIC
Expected cross validation index	0.047	0.056	0.519	ECVI
ECVI lower bound	0.051	0.056	0.38	ECVILO
ECVI upper bound	0.068	0.056	0.692	ECVIHI
MECVI	0.048	0.057	0.519	MECVI
Hoelter .05 index	5576		16	HFIVE
Hoelter .01 index	9630		24	HONE

APPENIDIX I
AMOS ANALUSIS RESULTS FOR THE CAPACITY TO PERFORM MEASUREMENT MODEL

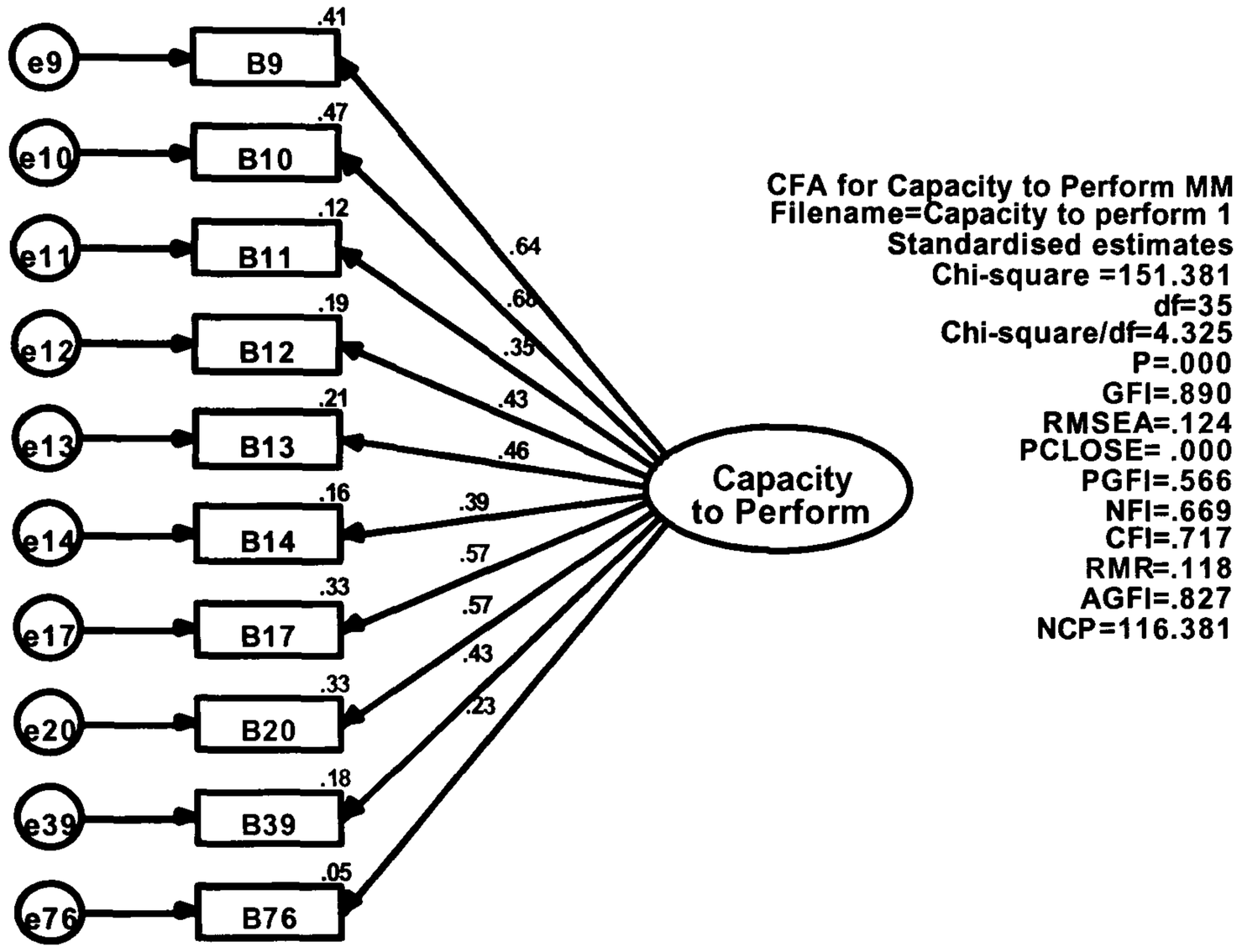


Figure I.1 The Capacity to Perform Measurement Model with Standardised Estimates (Model 1)

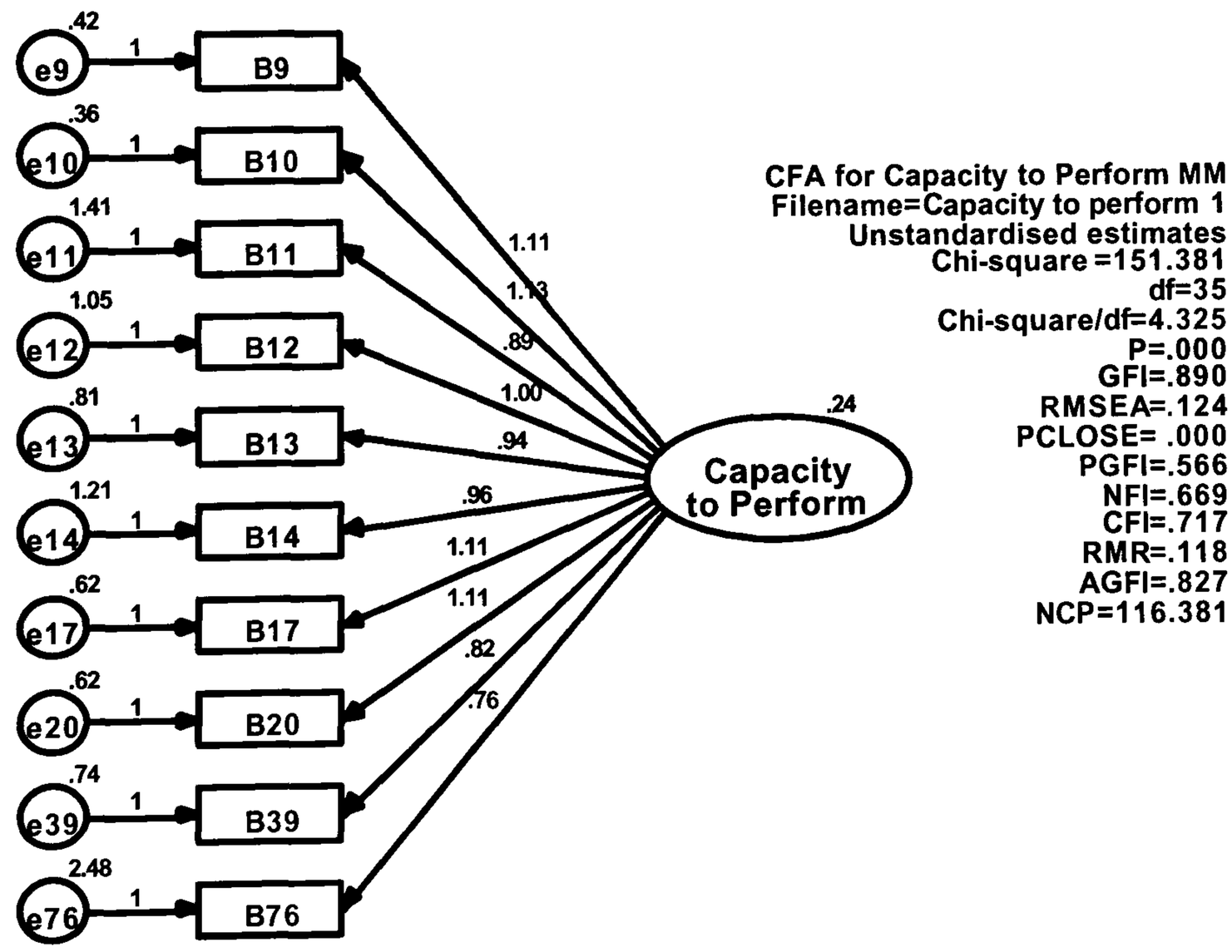


Figure I.2 The Capacity to Perform Measurement Model with Unstandardised Estimates (Model 1)

Table I.1 Goodness-of-Fit Statistics for the Capacity to Perform Measurement Model (Model 1)

Fit Measure	Default model	Saturated	Independence	Macro
Discrepancy	151.381	0	456.901	CMIN
Degrees of freedom	35	0	45	DF
P	0		0	P
Number of parameters	20	55	10	NPAR
Discrepancy / df	4.325		10.153	CMINDF
RMR	0.118	0	0.248	RMR
GFI	0.89	1	0.626	GFI
Adjusted GFI	0.827		0.543	AGFI
Parsimony-adjusted GFI	0.566		0.513	PGFI
Normed fit index	0.669	1	0	NFI
Relative fit index	0.574		0	RFI
Incremental fit index	0.724	1	0	IFI
Tucker-Lewis index	0.637		0	TLI
Comparative fit index	0.717	1	0	CFI
Parsimony ratio	0.778	0	1	PRATIO
Parsimony-adjusted NFI	0.52	0	0	PNFI
Parsimony-adjusted CFI	0.558	0	0	PCFI
Noncentrality parameter estimate	116.381	0	411.901	NCP
NCP lower bound	82.026	0	347.022	NCPLO
NCP upper bound	158.288	0	484.237	NCPHI
FMIN	0.701	0	2.115	FMIN
F0	0.539	0	1.907	F0
F0 lower bound	0.38	0	1.607	F0LO
F0 upper bound	0.733	0	2.242	F0HI
RMSEA	0.124		0.206	RMSEA
RMSEA lower bound	0.104		0.189	RMSEALO
RMSEA upper bound	0.145		0.223	RMSEAHI
P for test of close fit	0		0	PCLOSE
Akaike information criterion (AIC)	191.381	110	476.901	AIC
Browne-Cudeck criterion	193.527	115.902	477.974	BCC
Bayes information criterion	305.03	422.537	533.725	BIC
Consistent AIC	278.979	350.894	520.7	CAIC
Expected cross validation index	0.886	0.509	2.208	ECVI
ECVI lower bound	0.727	0.509	1.908	ECVILO
ECVI upper bound	1.08	0.509	2.543	ECVIHI
MECVI	0.896	0.537	2.213	MECVI
Hoelter .05 index	72		30	HFIVE
Hoelter .01 index	82		34	HONE

Table I.2 Modification Indexes for the Capacity to Perform Measurement Model (Model 1)

Covariances:			M.I.	Par Change
e11	<---------->	e76	26.281	0.667
e9	<---------->	e20	21.034	-0.181
e11	<---------->	e17	8.718	-0.201
e13	<---------->	e14	7.773	0.197
e11	<---------->	e13	7.608	-0.21
e10	<---------->	e9	6.183	0.078
e11	<---------->	e10	6.073	0.134
e12	<---------->	e10	5.926	-0.115
e13	<---------->	e39	5.886	0.134
e11	<---------->	e14	5.657	-0.22
e17	<---------->	e20	5.371	0.108
e10	<---------->	e17	5.194	-0.085
e14	<---------->	E39	4.265	-0.139
e11	<---------->	E39	4.243	-0.149
e12	<---------->	E9	4.073	0.102
Regression Weights:			M.I.	Par Change
B11	<----------	B76	24.586	0.252
B76	<----------	B11	22.422	0.402
B9	<----------	B20	12.934	-0.18
B20	<----------	B9	10.708	-0.218
B17	<----------	B11	7.461	-0.122
B13	<----------	B11	6.5	-0.127
B13	<----------	B14	6.324	0.132
B14	<----------	B13	5.787	0.182
B11	<----------	B13	5.66	-0.193
B11	<----------	B17	5.281	-0.197
B10	<----------	B11	5.216	0.081
B14	<----------	B11	4.83	-0.133
B10	<----------	B12	4.63	-0.085
B13	<----------	B39	4.606	0.143
B11	<----------	B14	4.596	-0.147
B39	<----------	B13	4.384	0.124

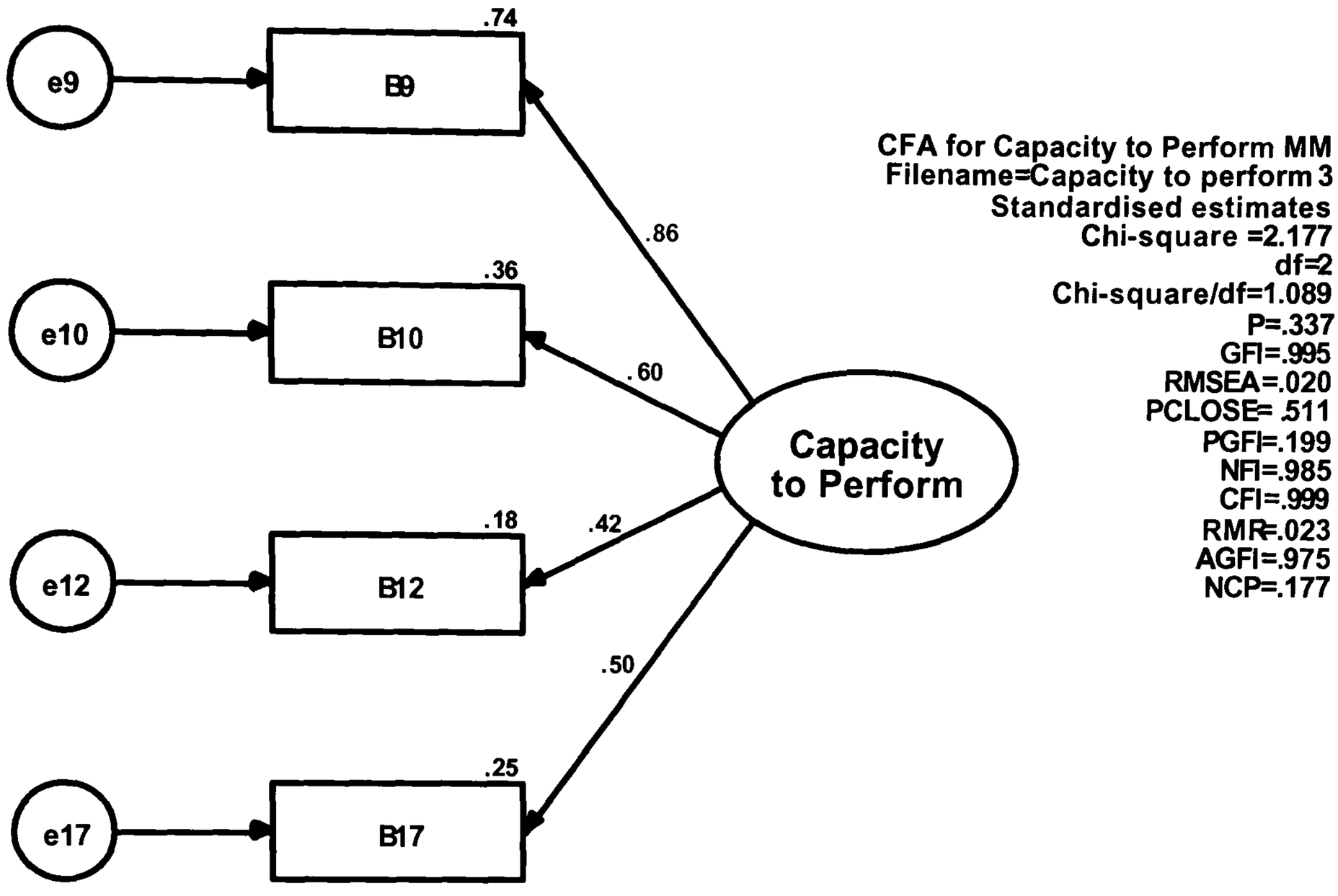


Figure I.3 The Capacity to Perform Measurement Model with Standardised Estimates (Model 2)

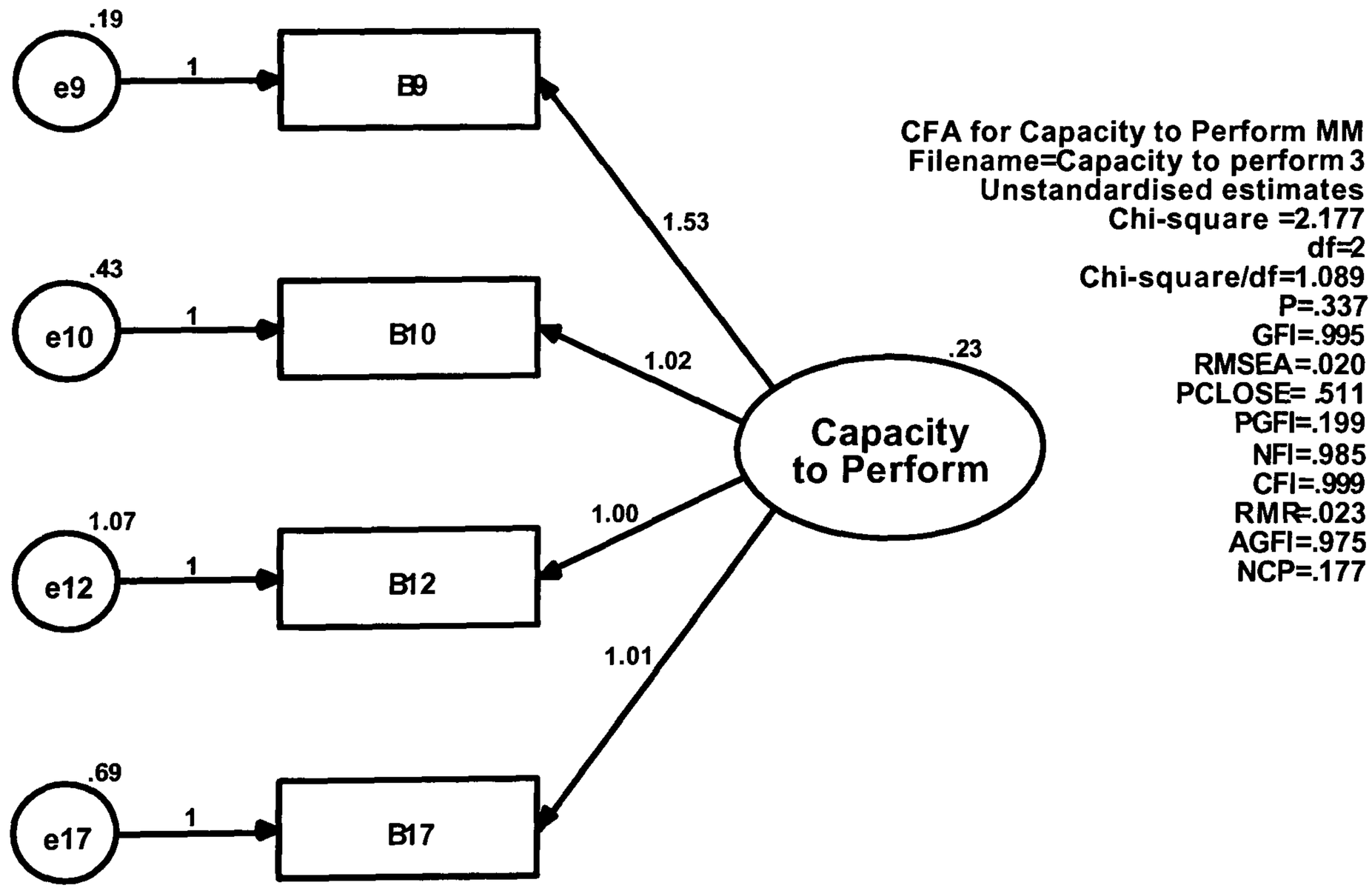


Figure I.4 The Capacity to Perform Measurement Model with Unstandardised Estimates (Model 2)

Table I.3 Goodness-of-Fit Statistics for the Capacity to Perform Measurement Model (Model 2)

Fit Measure	Default model	Saturated	Independence	Macro
Discrepancy	2.177	0	147.734	CMIN
Degrees of freedom	2	0	6	DF
P	0.337		0	P
Number of parameters	8	10	4	NPAR
Discrepancy / df	1.089		24.622	CMINDF
RMR	0.023	0	0.234	RMR
GFI	0.995	1	0.718	GFI
Adjusted GFI	0.975		0.53	AGFI
Parsimony-adjusted GFI	0.199		0.431	PGFI
Normed fit index	0.985	1	0	NFI
Relative fit index	0.956		0	RFI
Incremental fit index	0.999	1	0	IFI
Tucker-Lewis index	0.996		0	TLI
Comparative fit index	0.999	1	0	CFI
Parsimony ratio	0.333	0	1	PRATIO
Parsimony-adjusted NFI	0.328	0	0	PNFI
Parsimony-adjusted CFI	0.333	0	0	PCFI
Noncentrality parameter estimate	0.177	0	141.734	NCP
NCP lower bound	0	0	105.803	NCPLO
NCP upper bound	8.238	0	185.094	NCPHI
FMIN	0.01	0	0.684	FMIN
F0	0.001	0	0.656	F0
F0 lower bound	0	0	0.49	F0LO
F0 upper bound	0.038	0	0.857	F0HI
RMSEA	0.02		0.331	RMSEA
RMSEA lower bound	0		0.286	RMSEALO
RMSEA upper bound	0.138		0.378	RMSEAHI
P for test of close fit	0.511		0	PCLOSE
Akaike information criterion (AIC)	18.177	20	155.734	AIC
Browne-Cudeck criterion	18.557	20.474	155.924	BCC
Bayes information criterion	56.307	67.662	174.799	BIC
Consistent AIC	53.217	63.799	173.254	CAIC
Expected cross validation index	0.084	0.093	0.721	ECVI
ECVI lower bound	0.083	0.093	0.555	ECVILO
ECVI upper bound	0.121	0.093	0.922	ECVIHI
MECVI	0.086	0.095	0.722	MECVI
Hoelter .05 index	595		19	HFIVE
Hoelter .01 index	914		25	HONE

APPENDIX J
AMOS ANALYSIS RESULTS FOR THE INDIVIDUAL PERFORMANCE MEASUREMENT MODEL

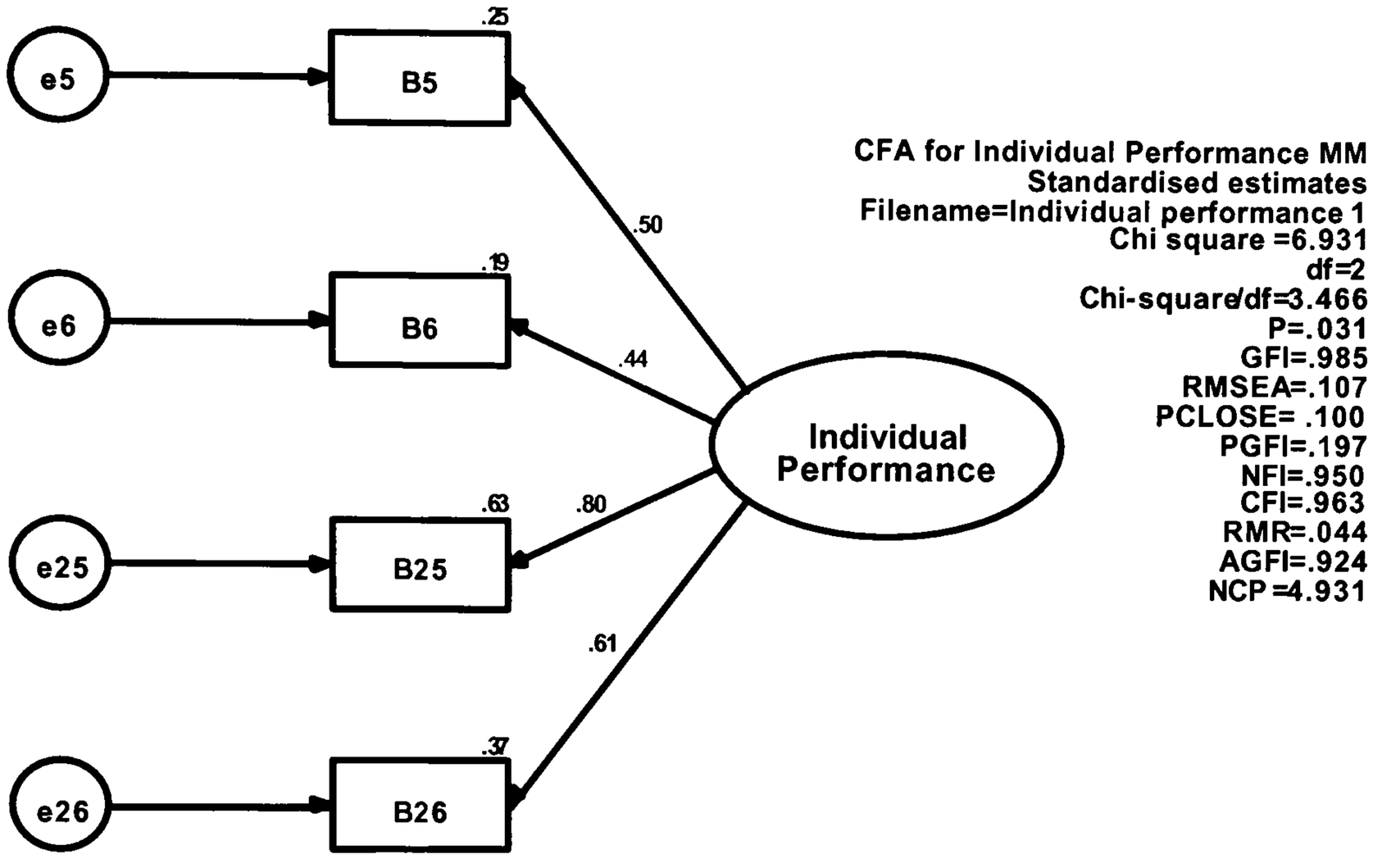


Figure J.1 The Individual Performance Measurement Model with Standardised Estimates (Model 1)

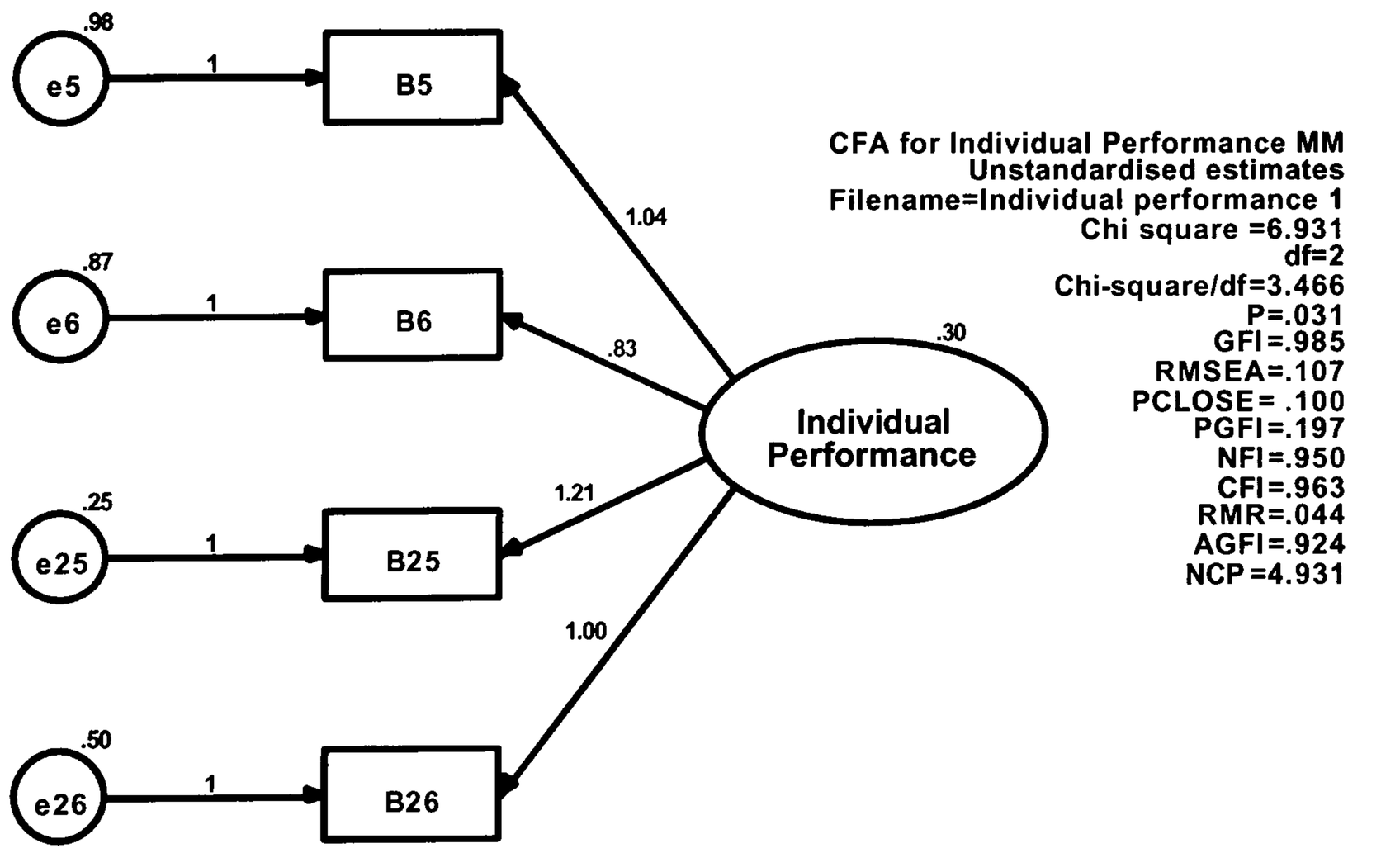


Figure J.2 The Individual Performance Measurement Model with Unstandardised Estimates (Model 1)

Table J.1 Goodness-of-Fit Statistics for the Individual Performance Measurement Model (Model 1)

Fit Measure	Default model	Saturated	Independence	Macro
Discrepancy	6.931	0	137.633	CMIN
Degrees of freedom	2	0	6	DF
P	0.031		0	P
Number of parameters	8	10	4	NPAR
Discrepancy / df	3.466		22.939	CMINDF
RMR	0.044	0	0.248	RMR
GFI	0.985	1	0.73	GFI
Adjusted GFI	0.924		0.549	AGFI
Parsimony-adjusted GFI	0.197		0.438	PGFI
Normed fit index	0.95	1	0	NFI
Relative fit index	0.849		0	RFI
Incremental fit index	0.964	1	0	IFI
Tucker-Lewis index	0.888		0	TLI
Comparative fit index	0.963	1	0	CFI
Parsimony ratio	0.333	0	1	PRATIO
Parsimony-adjusted NFI	0.317	0	0	PNFI
Parsimony-adjusted CFI	0.321	0	0	PCFI
Noncentrality parameter estimate	4.931	0	131.633	NCP
NCP lower bound	0.327	0	97.106	NCPLO
NCP upper bound	17.012	0	173.59	NCPHI
FMIN	0.032	0	0.637	FMIN
F0	0.023	0	0.609	F0
F0 lower bound	0.002	0	0.45	F0LO
F0 upper bound	0.079	0	0.804	F0HI
RMSEA	0.107		0.319	RMSEA
RMSEA lower bound	0.028		0.274	RMSEALO
RMSEA upper bound	0.198		0.366	RMSEAHI
P for test of close fit	0.1		0	PCLOSE
Akaike information criterion (AIC)	22.931	20	145.633	AIC
Browne-Cudeck criterion	23.31	20.474	145.822	BCC
Bayes information criterion	61.061	67.662	164.697	BIC
Consistent AIC	57.97	63.799	163.152	CAIC
Expected cross validation index	0.106	0.093	0.674	ECVI
ECVI lower bound	0.085	0.093	0.514	ECVILO
ECVI upper bound	0.162	0.093	0.868	ECVIHI
MECVI	0.108	0.095	0.675	MECVI
Hoelter .05 index	187		20	HFIVE
Hoelter .01 index	288		27	HONE

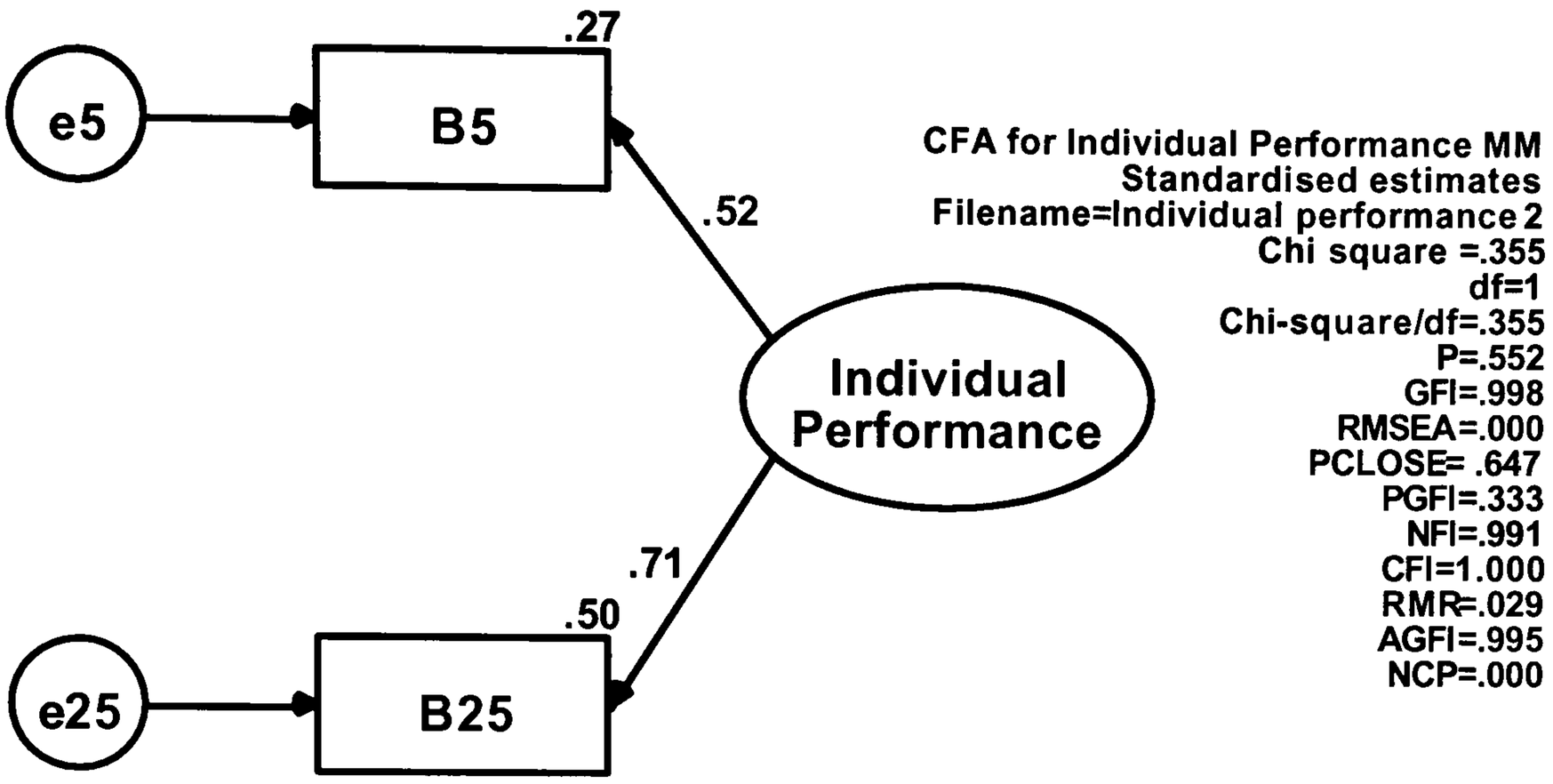


Figure J.3 The Individual Performance Measurement Model with Standardised Estimates (Model 2)

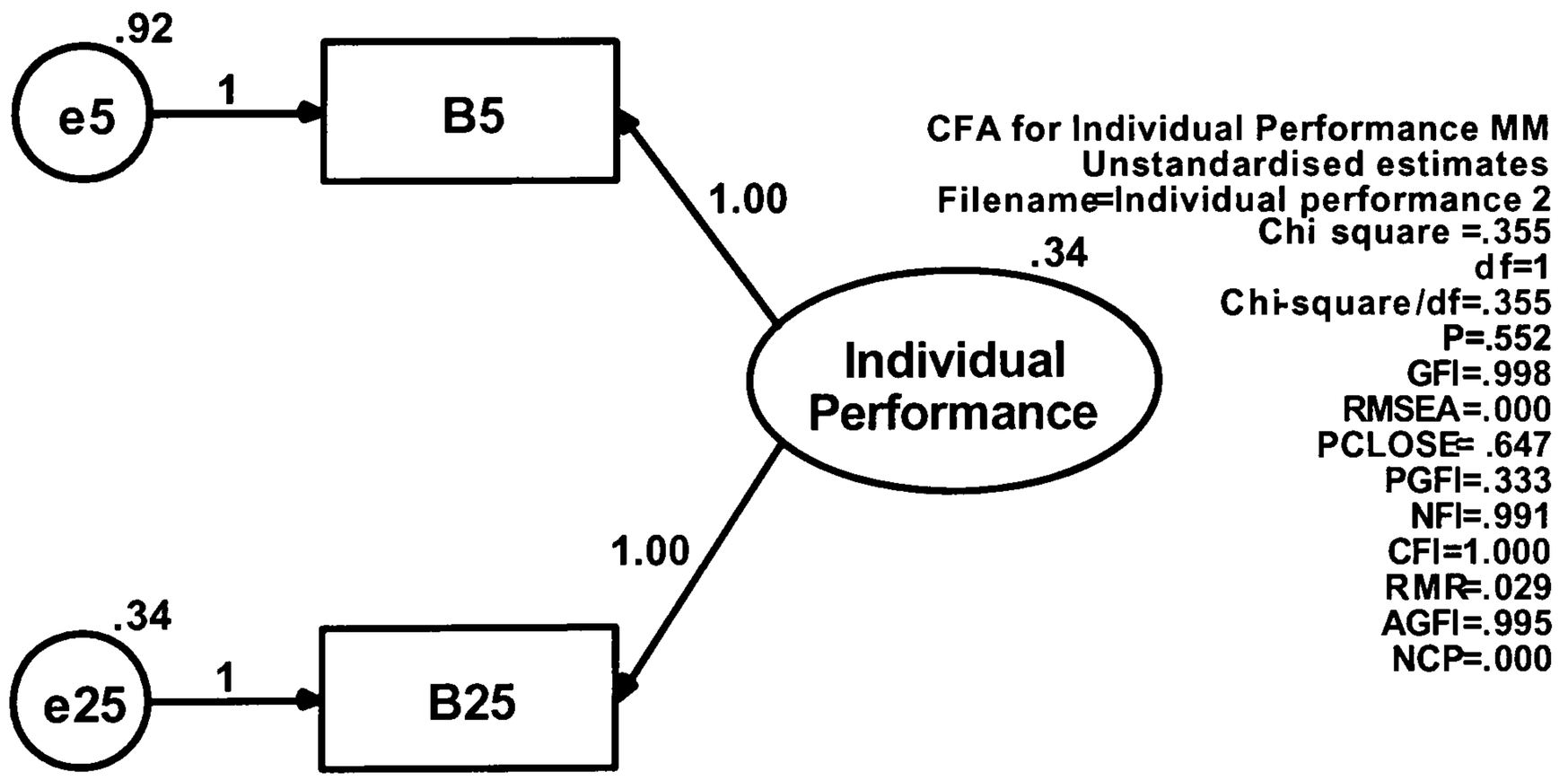


Figure J.4 The Individual Performance Measurement Model with Unstandardised Estimates (Model 2)

Table J.2 Goodness-of-Fit Statistics for the Individual Performance Measurement Model (Model 2)

Fit Measure	Default model	Saturated	Independence	Macro
Discrepancy	0.355	0	37.722	CMIN
Degrees of freedom	1	0	1	DF
P	0.552		0	P
Number of parameters	2	3	2	NPAR
Discrepancy / df	0.355		37.722	CMINDF
RMR	0.029	0	0.218	RMR
GFI	0.998	1	0.862	GFI
Adjusted GFI	0.995		0.586	AGFI
Parsimony-adjusted GFI	0.333		0.287	PGFI
Normed fit index	0.991	1	0	NFI
Relative fit index	0.991		0	RFI
Incremental fit index	1.018	1	0	IFI
Tucker-Lewis index	1.018		0	TLI
Comparative fit index	1	1	0	CFI
Parsimony ratio	1	0	1	PRATIO
Parsimony-adjusted NFI	0.991	0	0	PNFI
Parsimony-adjusted CFI	1	0	0	PCFI
Noncentrality parameter estimate	0	0	36.722	NCP
NCP lower bound	0	0	20.222	NCPLO
NCP upper bound	4.915	0	60.632	NCPHI
FMIN	0.002	0	0.175	FMIN
F0	0	0	0.17	F0
F0 lower bound	0	0	0.094	F0LO
F0 upper bound	0.023	0	0.281	F0HI
RMSEA	0		0.412	RMSEA
RMSEA lower bound	0		0.306	RMSEALO
RMSEA upper bound	0.151		0.53	RMSEAHI
P for test of close fit	0.647		0	PCLOSE
Akaike information criterion (AIC)	4.355	6	41.722	AIC
Browne-Cudeck criterion	4.411	6.085	41.778	BCC
Bayes information criterion	12.501	18.219	49.868	BIC
Consistent AIC	13.114	19.14	50.482	CAIC
Expected cross validation index	0.02	0.028	0.193	ECVI
ECVI lower bound	0.023	0.028	0.117	ECVILO
ECVI upper bound	0.046	0.028	0.304	ECVIHI
MECVI	0.02	0.028	0.193	MECVI
Hoelter .05 index	2340		22	HFIVE
Hoelter .01 index	4042		38	HONE

APPENDIX K
AMOS ANALYSIS RESULTS FOR THE ORGANISATIONAL PERFORMANCE MEASUREMENT MODEL

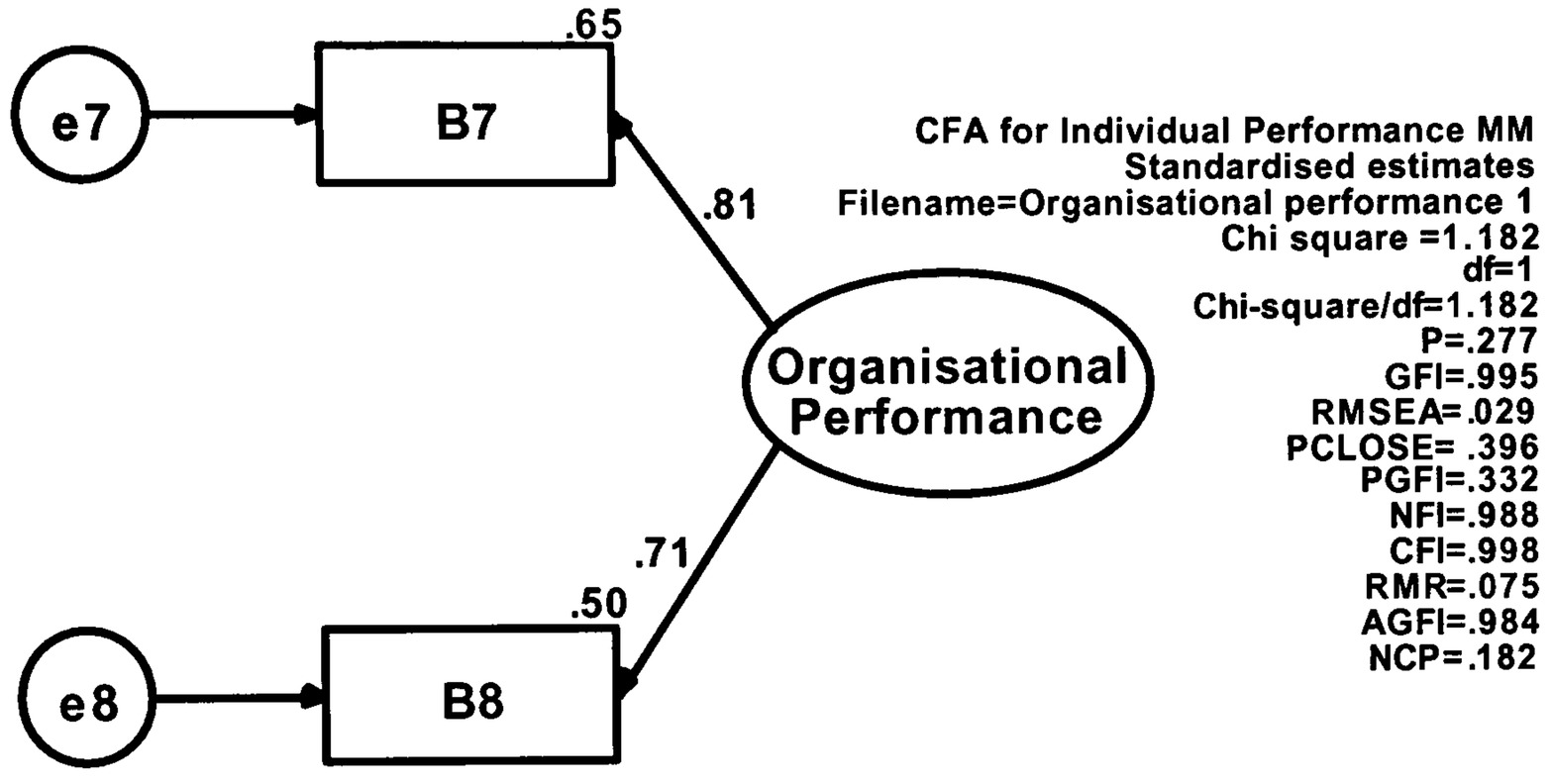


Figure K.1 The Organisational Performance Measurement Model with Standardised Estimates

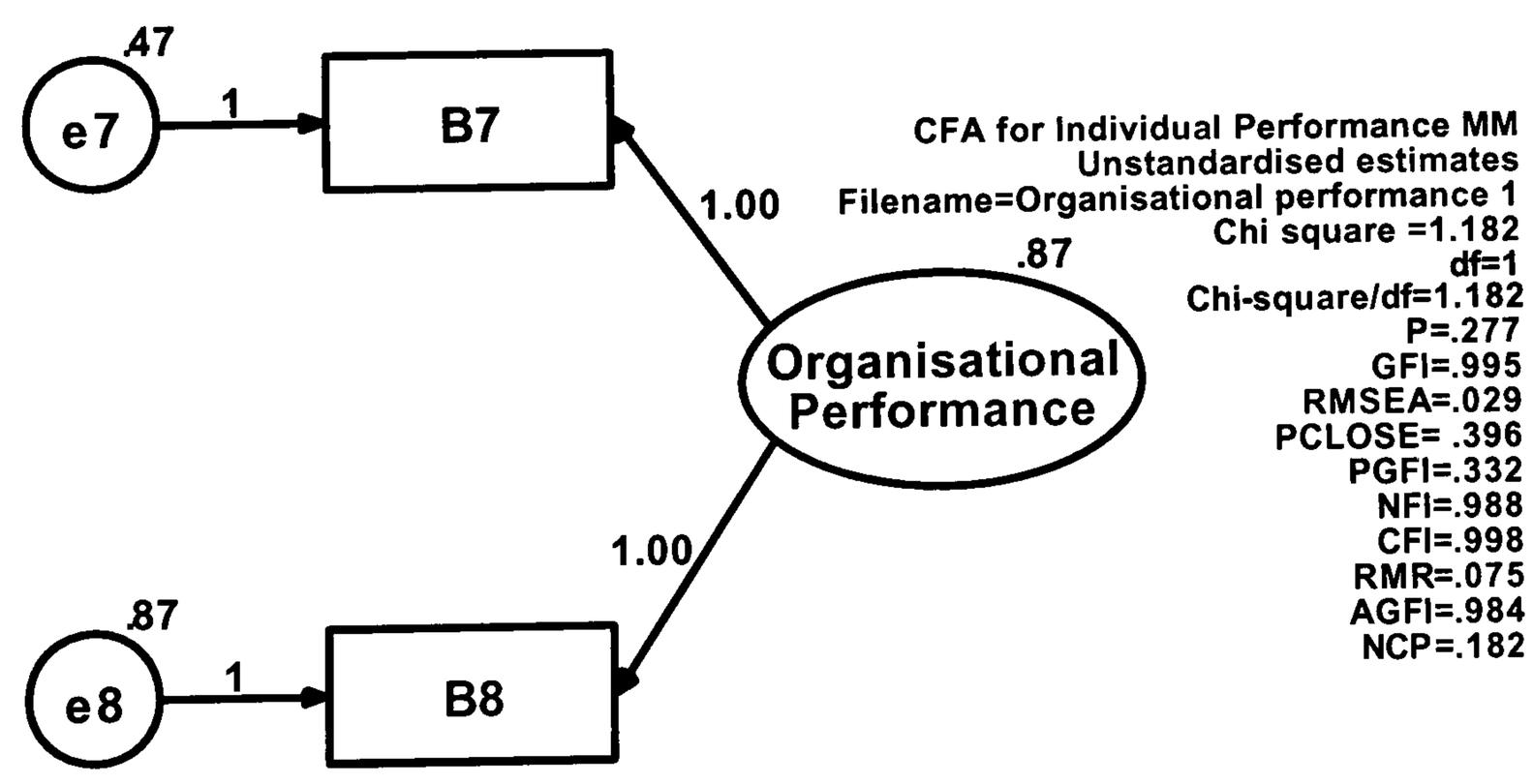


Figure K.2 The Organisational Performance Measurement Model with Unstandardised Estimates

Table K.1 Goodness-of-Fit Statistics for the Organisational Performance Measurement Model

Fit Measure	Default model	Saturated	Independence	Macro
Discrepancy	1.182	0	100.354	CMIN
Degrees of freedom	1	0	1	DF
P	0.277		0	P
Number of parameters	2	3	2	NPAR
Discrepancy / df	1.182		100.354	CMINDF
RMR	0.075	0	0.554	RMR
GFI	0.995	1	0.729	GFI
Adjusted GFI	0.984		0.187	AGFI
Parsimony-adjusted GFI	0.332		0.243	PGFI
Normed fit index	0.988	1	0	NFI
Relative fit index	0.988		0	RFI
Incremental fit index	0.998	1	0	IFI
Tucker-Lewis index	0.998		0	TLI
Comparative fit index	0.998	1	0	CFI
Parsimony ratio	1	0	1	PRATIO
Parsimony-adjusted NFI	0.988	0	0	PNFI
Parsimony-adjusted CFI	0.998	0	0	PCFI
Noncentrality parameter estimate	0.182	0	99.354	NCP
NCP lower bound	0	0	70.103	NCPLO
NCP upper bound	7.461	0	136.014	NCPHI
FMIN	0.005	0	0.465	FMIN
F0	0.001	0	0.46	F0
F0 lower bound	0	0	0.325	F0LO
F0 upper bound	0.035	0	0.63	F0HI
RMSEA	0.029		0.678	RMSEA
RMSEA lower bound	0		0.57	RMSEALO
RMSEA upper bound	0.186		0.794	RMSEAHI
P for test of close fit	0.396		0	PCLOSE
Akaike information criterion (AIC)	5.182	6	104.354	AIC
Browne-Cudeck criterion	5.239	6.085	104.41	BCC
Bayes information criterion	13.328	18.219	112.5	BIC
Consistent AIC	13.942	19.14	113.113	CAIC
Expected cross validation index	0.024	0.028	0.483	ECVI
ECVI lower bound	0.023	0.028	0.348	ECVILO
ECVI upper bound	0.058	0.028	0.653	ECVIHI
MECVI	0.024	0.028	0.483	MECVI
Hoelter .05 index	702		9	HFIVE
Hoelter .01 index	1213		15	HONE

APPENDIX L
AMOS ANALYSIS RESULTS FOR THE MOTIVATION AND PERFORMANCE ANTECEDENTS MEASUREMENT MODEL

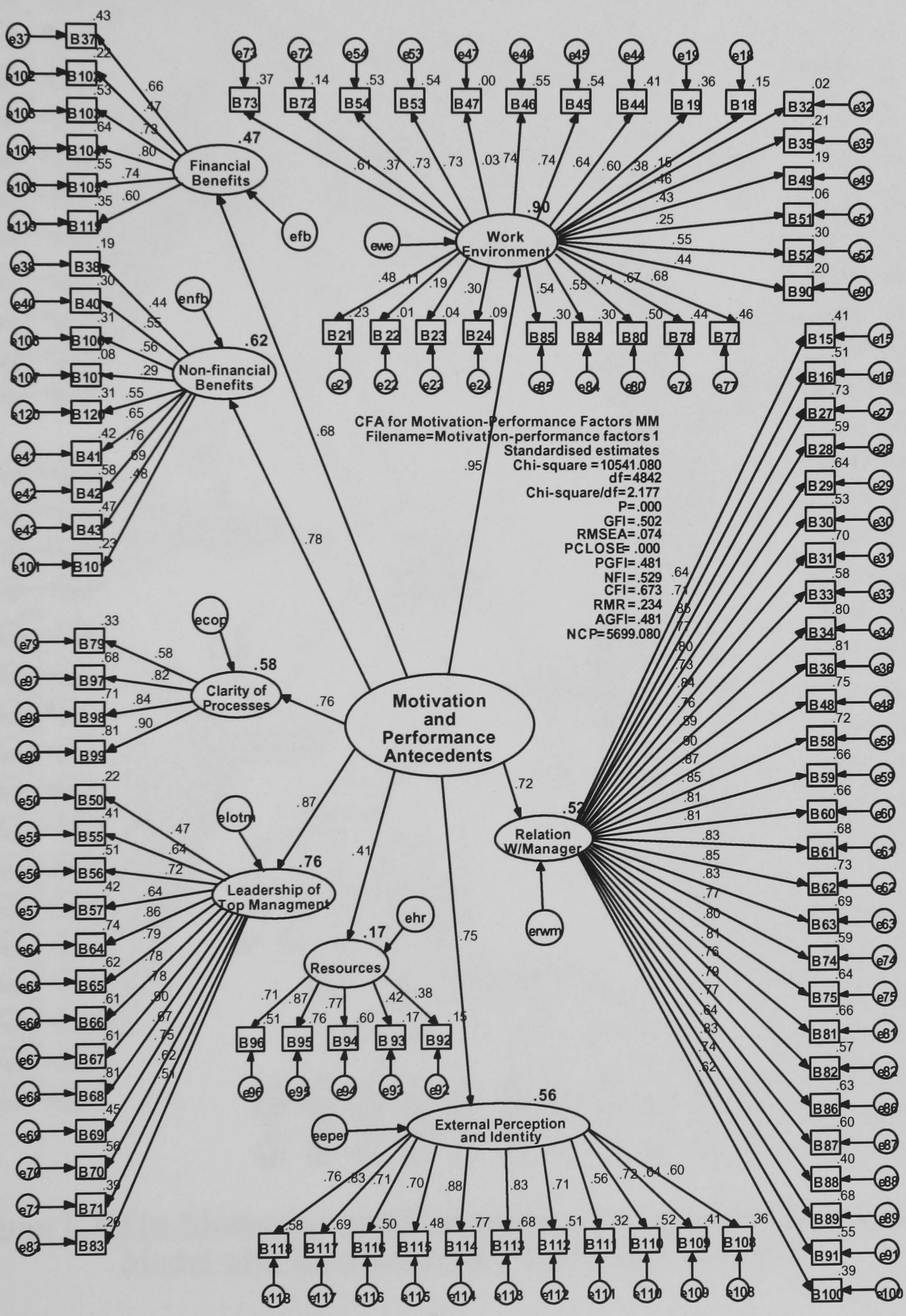


Figure L.1 The Motivation and Performance Antecedents Measurement Model with Standardised Estimates (Model 1)

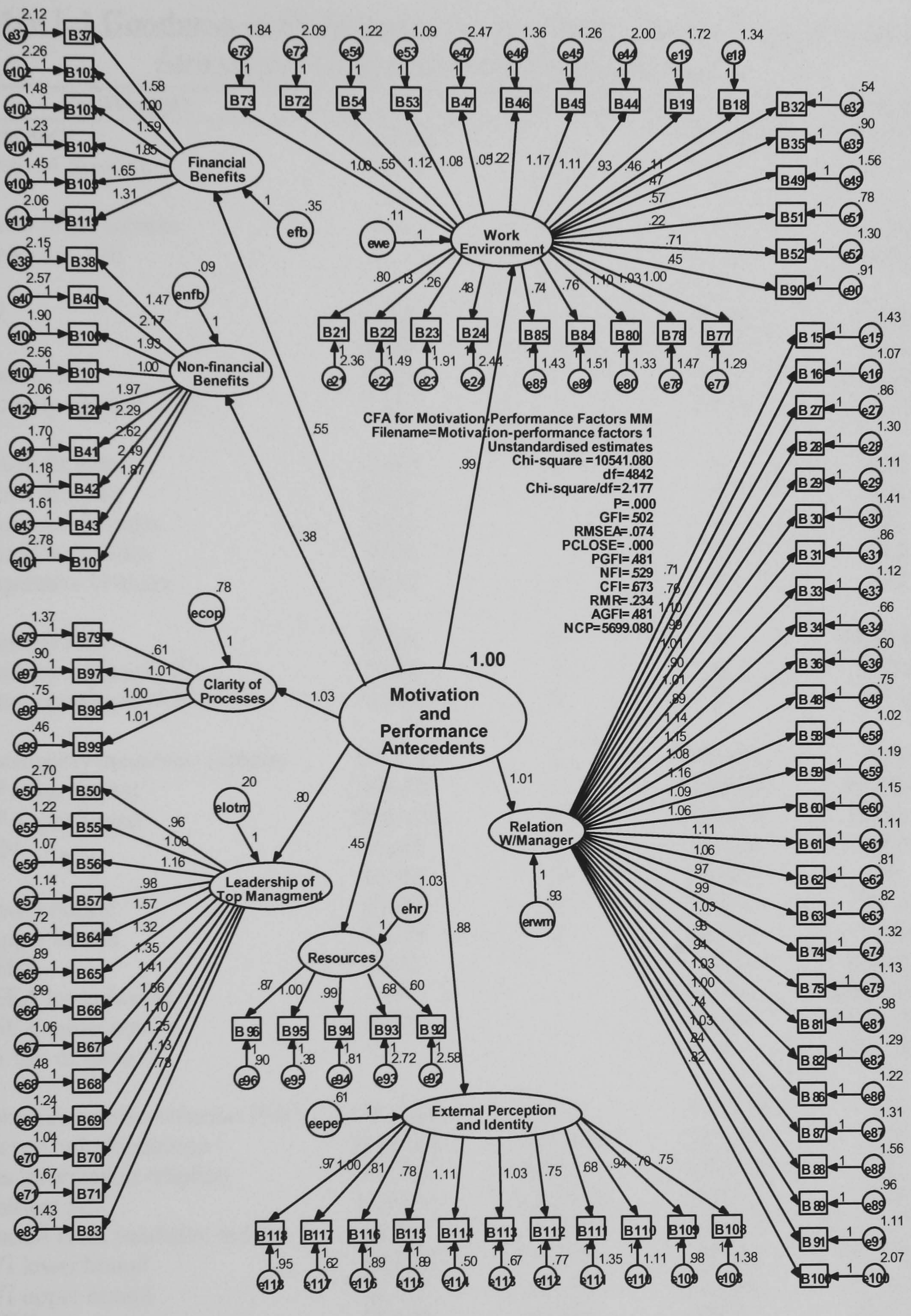


Figure L.2 The Motivation and Performance Antecedents Measurement Model with Unstandardised Estimates (Model 1)

Table L.1 Goodness-of-Fit Statistics for the Motivation and Performance Antecedents Measurement Model (Model 1)

Fit Measure	Default model	Saturated	Independence	Macro
Discrepancy	10541.08	0	22376.76	CMIN
Degrees of freedom	4842	0	4950	DF
P	0		0	P
Number of parameters	208	5050	100	NPAR
Discrepancy / df	2.177		4.521	CMINDF
RMR	0.234	0	0.926	RMR
GFI	0.502	1	0.079	GFI
Adjusted GFI	0.481		0.061	AGFI
Parsimony-adjusted GFI	0.481		0.078	PGFI
Normed fit index	0.529	1	0	NFI
Relative fit index	0.518		0	RFI
Incremental fit index	0.675	1	0	IFI
Tucker-Lewis index	0.666		0	TLI
Comparative fit index	0.673	1	0	CFI
Parsimony ratio	0.978	0	1	PRATIO
Parsimony-adjusted NFI	0.517	0	0	PNFI
Parsimony-adjusted CFI	0.658	0	0	PCFI
Noncentrality parameter estimate	5699.08	0	17426.76	NCP
NCP lower bound	5406.307	0	16966.07	NCPLO
NCP upper bound	5999.172	0	17894.24	NCPHI
FMIN	48.801	0	103.596	FMIN
F0	26.385	0	80.679	F0
F0 lower bound	25.029	0	78.547	F0LO
F0 upper bound	27.774	0	82.844	F0HI
RMSEA	0.074		0.128	RMSEA
RMSEA lower bound	0.072		0.126	RMSEALO
RMSEA upper bound	0.076		0.129	RMSEAHI
P for test of close fit	0		0	PCLOSE
Akaike information criterion (AIC)	10957.08	10100	22576.76	AIC
Browne-Cudeck criterion	11322.44	18970.44	22752.42	BCC
Bayes information criterion	12617.97	50424.59	23375.27	BIC
Consistent AIC	11868.1	32218.48	23014.75	CAIC
Expected cross validation index	50.727	46.759	104.522	ECVI
ECVI lower bound	49.372	46.759	102.389	ECVILO
ECVI upper bound	52.117	46.759	106.686	ECVIHI
MECVI	52.419	87.826	105.335	MECVI
Hoelter .05 index	103		50	HFIVE
Hoelter .01 index	104		51	HONE

Table L.2 Modification Indexes for the Motivation and Performance Antecedents Measurement Model (Model 1)

Covariances:	(MIs>30 shown)		M.I.	Par Change
e82	<---------->	e81	106.775	0.812
e93	<---------->	e92	95.469	1.810
e46	<---------->	e45	57.637	0.724
e42	<---------->	e41	54.476	0.821
e116	<---------->	e115	52.731	0.467
e75	<---------->	e74	46.419	0.585
e92	<---------->	Motivation_and_Performance_Antecedents	45.436	0.775
e54	<---------->	e53	39.817	0.528
e16	<---------->	e15	39.109	0.536
e23	<---------->	e24	38.616	0.917
e120	<---------->	e119	38.479	0.932
e30	<---------->	e29	36.102	0.524
e89	<---------->	e61	35.009	0.433
e69	<---------->	e70	33.668	0.471
e56	<---------->	e57	33.438	0.453
e32	<---------->	e51	31.579	0.249
e86	<---------->	e89	31.304	0.427
e93	<---------->	Motivation_and_Performance_Antecedents	30.873	0.658
Regression Weights: (MIs>10.5 shown)			M.I.	Par Change
B92	<----------	Motivation_and_Performance_Antecedents	45.436	0.775
B92	<----------	Work_Environment	43.293	0.716
B92	<----------	Non-financial_Benefits	40.327	1.563
B92	<----------	Leadership of_Top Managment	38.495	0.771
B92	<----------	Financial_Benefits	36.145	0.884
B92	<----------	Clarity of_Processes	33.728	0.495
B93	<----------	Work_Environment	31.038	0.624
B93	<----------	Motivation_and_Performance_Antecedents	30.873	0.658
B92	<----------	External Perception_and Identity	30.140	0.533
B93	<----------	Clarity of_Processes	28.539	0.469
B93	<----------	Leadership of_Top Managment	28.187	0.679
B93	<----------	Non-financial_Benefits	24.568	1.255
B120	<----------	External Perception_and Identity	20.295	0.399
B120	<----------	Financial_Benefits	20.054	0.600
B93	<----------	Financial_Benefits	19.630	0.670
B100	<----------	Human_Resources	18.811	0.415
B92	<----------	Relation_W/Manager	17.236	0.332
B84	<----------	Human_Resources	16.977	0.338
B100	<----------	Clarity of_Processes	15.131	0.295
B71	<----------	Relation_W/Manager	14.586	0.247
B100	<----------	Non-financial_Benefits	13.981	0.819
B43	<----------	Financial_Benefits	13.757	0.455
B93	<----------	External Perception_and Identity	13.678	0.370
B55	<----------	Human_Resources	13.242	0.270
B106	<----------	Financial_Benefits	12.154	0.449
B77	<----------	Relation_W/Manager	11.310	0.193
B50	<----------	Non-financial_Benefits	11.089	0.833
B41	<----------	Financial_Benefits	10.996	-0.412
B31	<----------	Human_Resources	10.734	-0.205
B90	<----------	Financial_Benefits	10.647	-0.283
B102	<----------	Non-financial_Benefits	10.610	0.755
B94	<----------	Motivation_and_Performance_Antecedents	10.558	-0.231

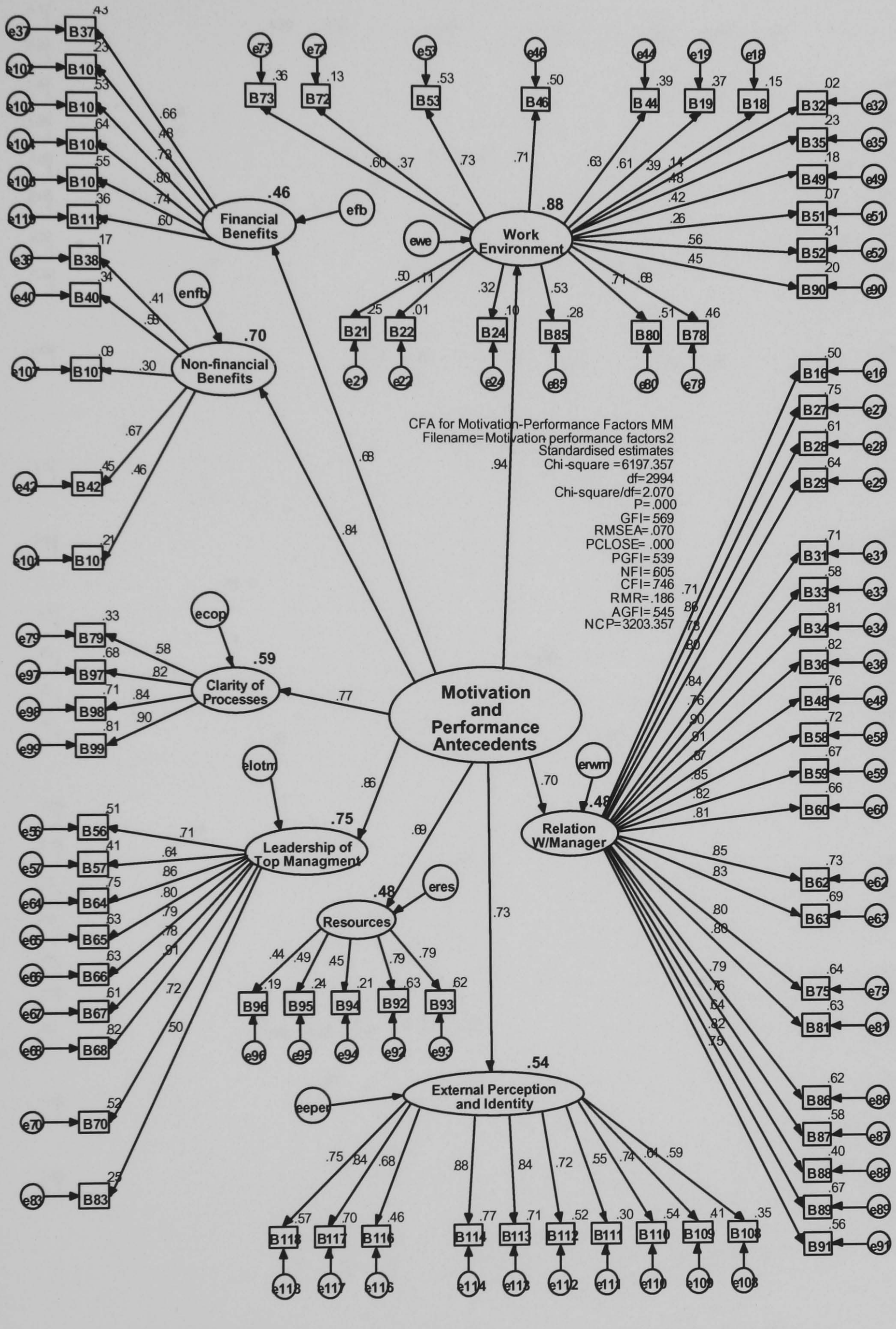


Figure L.3 The Motivation and Performance Antecedents Measurement Model with Standardised Estimates (Model 2)

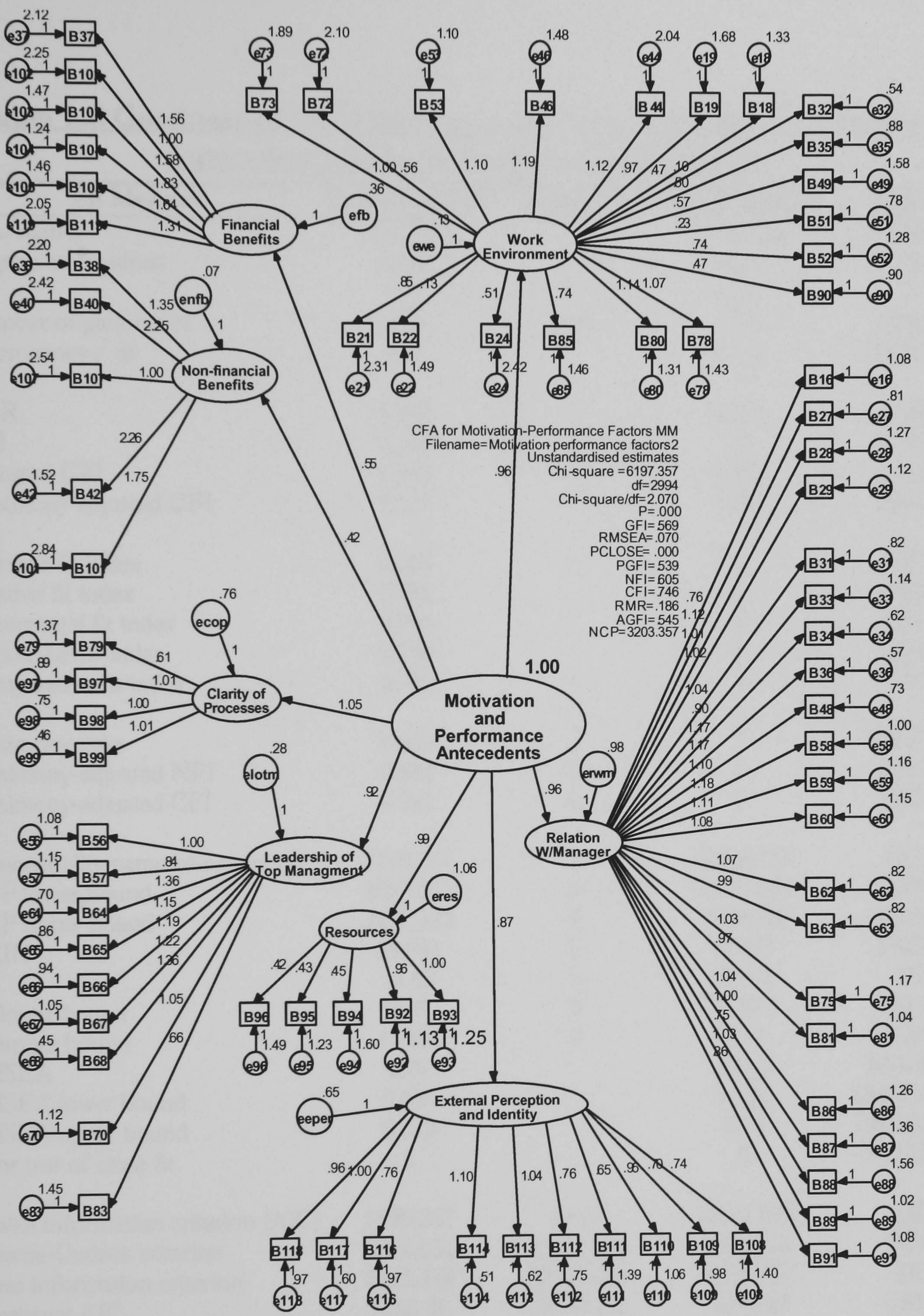


Figure L.4 The Motivation and Performance Antecedents Measurement Model with Unstandardised Estimates (Model 2)

Table L.3 Goodness-of-Fit Statistics for the Motivation and Performance Antecedents Measurement Model (Model 2)

Fit Measure	Default model	Saturated	Independence	Macro
Discrepancy	6197.357	0	15689.638	CMIN
Degrees of freedom	2994	0	3081	DF
P	0		0	P
Number of parameters	166	3160	79	NPAR
Discrepancy / df	2.07		5.092	CMINDF
RMR	0.186	0	0.915	RMR
GFI	0.569	1	0.1	GFI
Adjusted GFI	0.545		0.076	AGFI
Parsimony-adjusted GFI	0.539		0.097	PGFI
Normed fit index	0.605	1	0	NFI
Relative fit index	0.594		0	RFI
Incremental fit index	0.748	1	0	IFI
Tucker-Lewis index	0.739		0	TLI
Comparative fit index	0.746	1	0	CFI
Parsimony ratio	0.972	0	1	PRATIO
Parsimony-adjusted NFI	0.588	0	0	PNFI
Parsimony-adjusted CFI	0.725	0	0	PCFI
Noncentrality parameter estimate	3203.357	0	12608.638	NCP
NCP lower bound	2981.513	0	12220.695	NCPLO
NCP upper bound	3432.573	0	13003.303	NCPHI
FMIN	28.691	0	72.637	FMIN
F0	14.83	0	58.373	F0
F0 lower bound	13.803	0	56.577	F0LO
F0 upper bound	15.892	0	60.2	F0HI
RMSEA	0.07		0.138	RMSEA
RMSEA lower bound	0.068		0.136	RMSEALO
RMSEA upper bound	0.073		0.14	RMSEAHI
P for test of close fit	0		0	PCLOSE
Akaike information criterion (AIC)	6529.357	6320	15847.638	AIC
Browne-Cudeck criterion	6724.651	10037.647	15940.58	BCC
Bayes information criterion	7815.748	30807.931	16459.837	BIC
Consistent AIC	7256.42	20160.476	16193.65	CAIC
Expected cross validation index	30.229	29.259	73.369	ECVI
ECVI lower bound	29.201	29.259	71.573	ECVILO
ECVI upper bound	31.29	29.259	75.196	ECVIHI
MECVI	31.133	46.471	73.799	MECVI
Hoelter .05 index	109		45	HFIVE
Hoelter .01 index	111		45	HONE

Table L.4 Modification Indexes for the Motivation and Performance Antecedents Measurement Model (Model 2)

Covariances:	(MIs>20 shown)		M.I.	Par Change
e95	<---------->	e94	93.757	0.970
e95	<---------->	e96	71.847	0.818
e96	<---------->	e94	40.077	0.694
e86	<---------->	e89	36.501	0.485
e56	<---------->	e57	34.527	0.465
e32	<---------->	e51	31.897	0.251
e102	<---------->	enfb	31.713	0.274
e87	<---------->	e81	30.358	0.462
e52	<---------->	e90	29.479	0.408
e22	<---------->	e24	26.858	0.672
e35	<---------->	e32	26.534	0.245
e80	<---------->	e78	25.595	0.506
e51	<---------->	e52	24.489	0.344
e102	<---------->	e101	22.990	0.867
e116	<---------->	e91	21.607	0.338
e19	<---------->	e18	21.200	0.483
e92	<---------->	e119	21.111	0.585
e89	<---------->	e62	20.927	0.298
e67	<---------->	e68	20.342	0.249
Regression Weights:	(MIs>5 shown)		M.I.	Par Change
B80	<----------	Relation_W/Manager	10.948	0.197
B90	<----------	Financial_Benefits	10.826	-0.284
B79	<----------	Relation_W/Manager	8.793	0.177
B102	<----------	Non-financial_Benefits	7.913	0.663
B51	<----------	Financial_Benefits	7.650	-0.220
B104	<----------	Leadership of_Top Managment	7.341	-0.228
B104	<----------	Non-financial_Benefits	6.875	-0.516
B108	<----------	Financial_Benefits	6.652	0.279
B94	<----------	Relation_W/Manager	6.241	-0.161
B48	<----------	Resources	6.162	-0.114
B79	<----------	Leadership of_Top Managment	6.069	0.195
B104	<----------	Resources	5.955	-0.163
B107	<----------	Financial_Benefits	5.950	0.353
B36	<----------	External Perception_and Identity	5.931	-0.115
Resources	<----------	Relation_W/Manager	5.508	-0.150
B75	<----------	Work_Environment	5.419	0.177
B104	<----------	Work_Environment	5.407	-0.205
B103	<----------	Clarity of_Processes	5.106	0.156
B79	<----------	Work_Environment	5.001	0.185

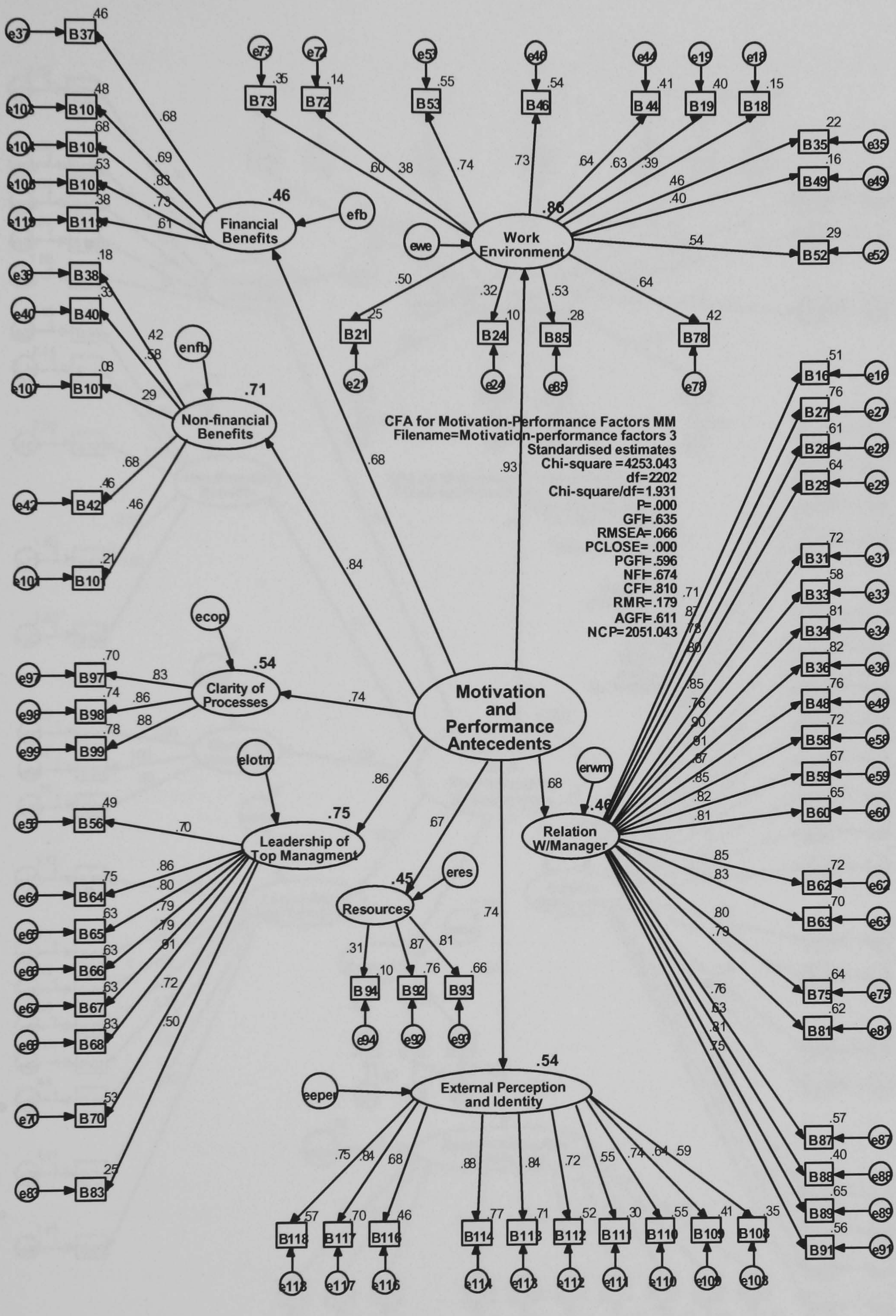


Figure L.5 The Motivation and Performance Antecedents Measurement Model with Standardised Estimates (Model 3)

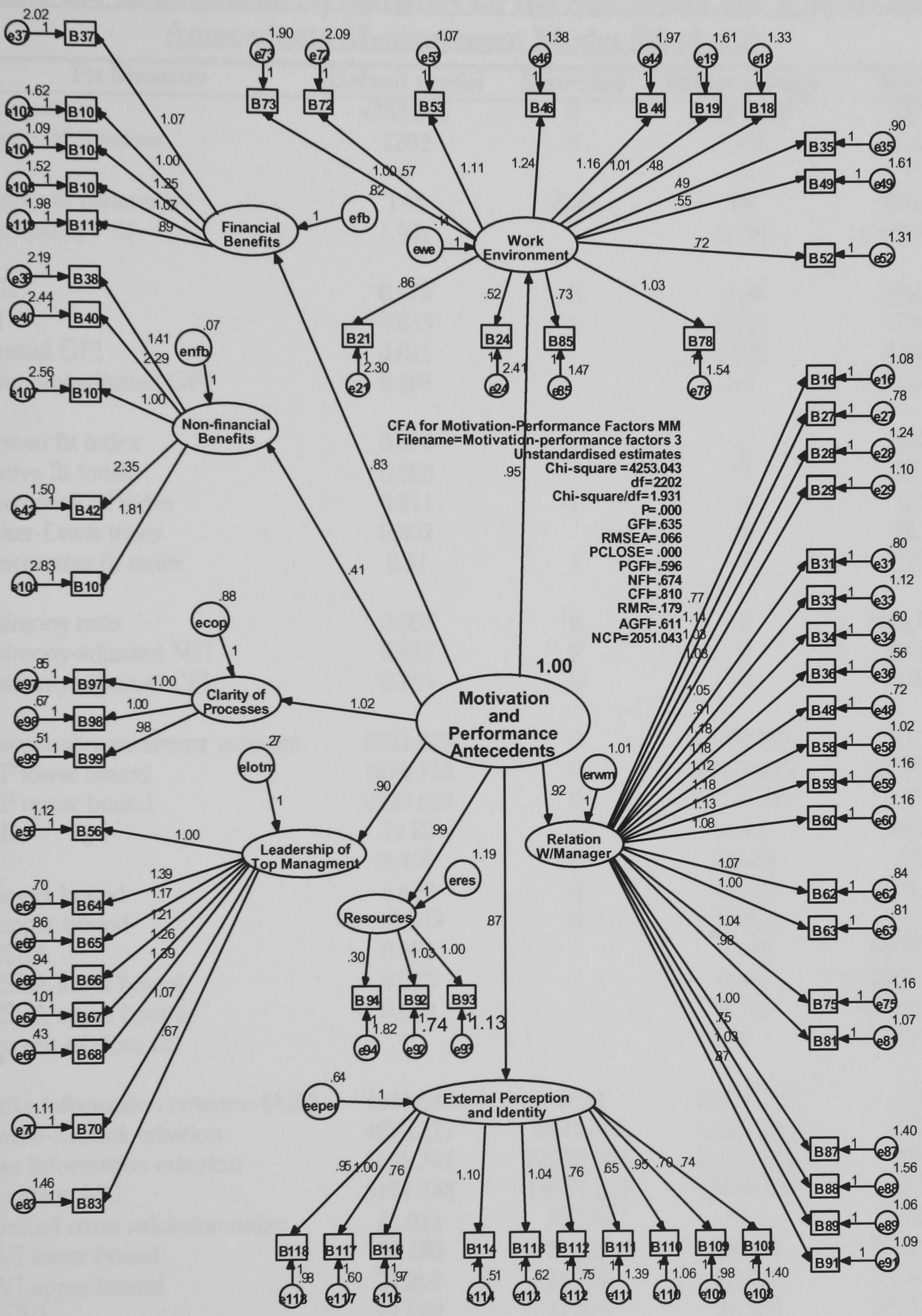


Figure L.6 The Motivation and Performance Antecedents Measurement Model with Unstandardised Estimates (Model 3)

Table L.5 Goodness-of-Fit Statistics for the Motivation and Performance Antecedents Measurement Model (Model 3)

Fit Measure	Default model	Saturated	Independence	Macro
Discrepancy	4253.043	0	13061.706	CMIN
Degrees of freedom	2202	0	2278	DF
P	0		0	P
Number of parameters	144	2346	68	NPAR
Discrepancy / df	1.931		5.734	CMINDF
RMR	0.179	0	0.98	RMR
GFI	0.635	1	0.103	GFI
Adjusted GFI	0.611		0.076	AGFI
Parsimony-adjusted GFI	0.596		0.1	PGFI
Normed fit index	0.674	1	0	NFI
Relative fit index	0.663		0	RFI
Incremental fit index	0.811	1	0	IFI
Tucker-Lewis index	0.803		0	TLI
Comparative fit index	0.81	1	0	CFI
Parsimony ratio	0.967	0	1	PRATIO
Parsimony-adjusted NFI	0.652	0	0	PNFI
Parsimony-adjusted CFI	0.783	0	0	PCFI
Noncentrality parameter estimate	2051.043	0	10783.706	NCP
NCP lower bound	1870.155	0	10427.843	NCPLO
NCP upper bound	2239.647	0	11146.241	NCPHI
FMIN	19.69	0	60.471	FMIN
F0	9.496	0	49.925	F0
F0 lower bound	8.658	0	48.277	F0LO
F0 upper bound	10.369	0	51.603	F0HI
RMSEA	0.066		0.148	RMSEA
RMSEA lower bound	0.063		0.146	RMSEALO
RMSEA upper bound	0.069		0.151	RMSEAHI
P for test of close fit	0		0	PCLOSE
Akaike information criterion (AIC)	4541.043	4692	13197.706	AIC
Browne-Cudeck criterion	4676.227	6894.367	13261.543	BCC
Bayes information criterion	5635.357	22520.204	13714.466	BIC
Consistent AIC	5171.748	14967.239	13495.539	CAIC
Expected cross validation index	21.023	21.722	61.1	ECVI
ECVI lower bound	20.186	21.722	59.453	ECVILO
ECVI upper bound	21.897	21.722	62.779	ECVIHI
MECVI	21.649	31.918	61.396	MECVI
Hoelter .05 index	118		40	HFIVE
Hoelter .01 index	120		41	HONE

Table L.6 Modification Indexes for the Motivation and Performance Antecedents Measurement Model (Model 3)

Covariances: (MIs>15 shown)			M.I.	Par Change
e87	<---------->	e81	32.971	0.493
e89	<---------->	e62	24.810	0.337
e116	<---------->	e91	21.760	0.339
e19	<---------->	e18	20.766	0.471
e87	<---------->	e89	20.671	0.390
e58	<---------->	e27	20.170	-0.291
e21	<---------->	Enfb	18.062	0.202
e60	<---------->	e58	17.956	0.330
e56	<---------->	e67	17.695	-0.327
e89	<---------->	e81	17.493	0.315
e116	<---------->	e110	17.371	-0.306
e36	<---------->	e67	17.189	0.235
e107	<---------->	e78	17.030	0.582
e92	<---------->	e119	16.922	0.479
e116	<---------->	e113	16.235	-0.236
e89	<---------->	e103	16.233	0.393
e118	<---------->	e116	16.138	0.284
e67	<---------->	e68	15.585	0.212
Regression Weights:			M.I.	Par Change
B104	<----------	Leadership of_Top Managment	8.715	-0.248
B104	<----------	Work_Environment	7.619	-0.240
B104	<----------	Non-financial_Benefits	7.561	-0.540
B108	<----------	Financial_Benefits	7.516	0.196
B104	<----------	Resources	7.259	-0.168
B103	<----------	Clarity of_Processes	6.779	0.183
B73	<----------	Relation_W/Manager	6.387	0.180
B104	<----------	Motivation_and_Performance_Antecedents	6.371	-0.223
B103	<----------	Non-financial_Benefits	5.781	0.518
B49	<----------	Relation_W/Manager	5.542	0.152
B36	<----------	External Perception_and Identity	5.473	-0.110
B87	<----------	Non-financial_Benefits	5.093	0.428
B75	<----------	Work_Environment	5.006	0.172
B81	<----------	Non-financial_Benefits	4.807	0.364
B107	<----------	Financial_Benefits	4.788	0.210
B98	<----------	Leadership of_Top Managment	4.711	-0.141
B42	<----------	Relation_W/Manager	4.652	-0.147
B19	<----------	Clarity of_Processes	4.607	-0.144
B81	<----------	Leadership of_Top Managment	4.493	0.151
B44	<----------	Resources	4.476	0.154
B112	<----------	Relation_W/Manager	4.465	-0.095
B78	<----------	Clarity of_Processes	4.445	0.139
B48	<----------	Resources	4.416	-0.093
B78	<----------	Resources	4.262	0.133
B112	<----------	Work_Environment	4.205	-0.128
B27	<----------	Work_Environment	4.164	-0.131
B37	<----------	Work_Environment	4.144	0.215

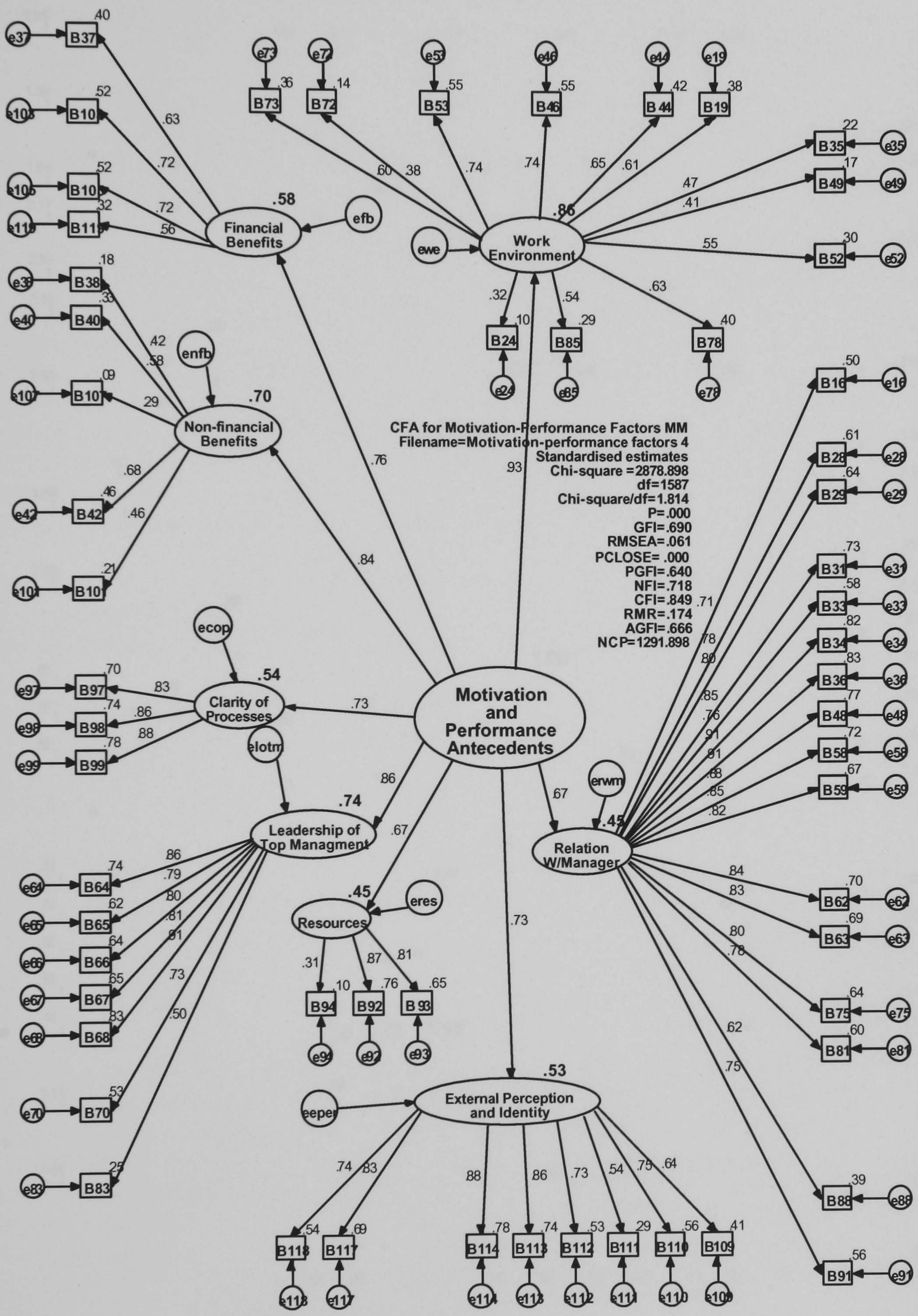


Figure L.7 The Motivation and Performance Antecedents Measurement Model with Standardised Estimates (Model 4)

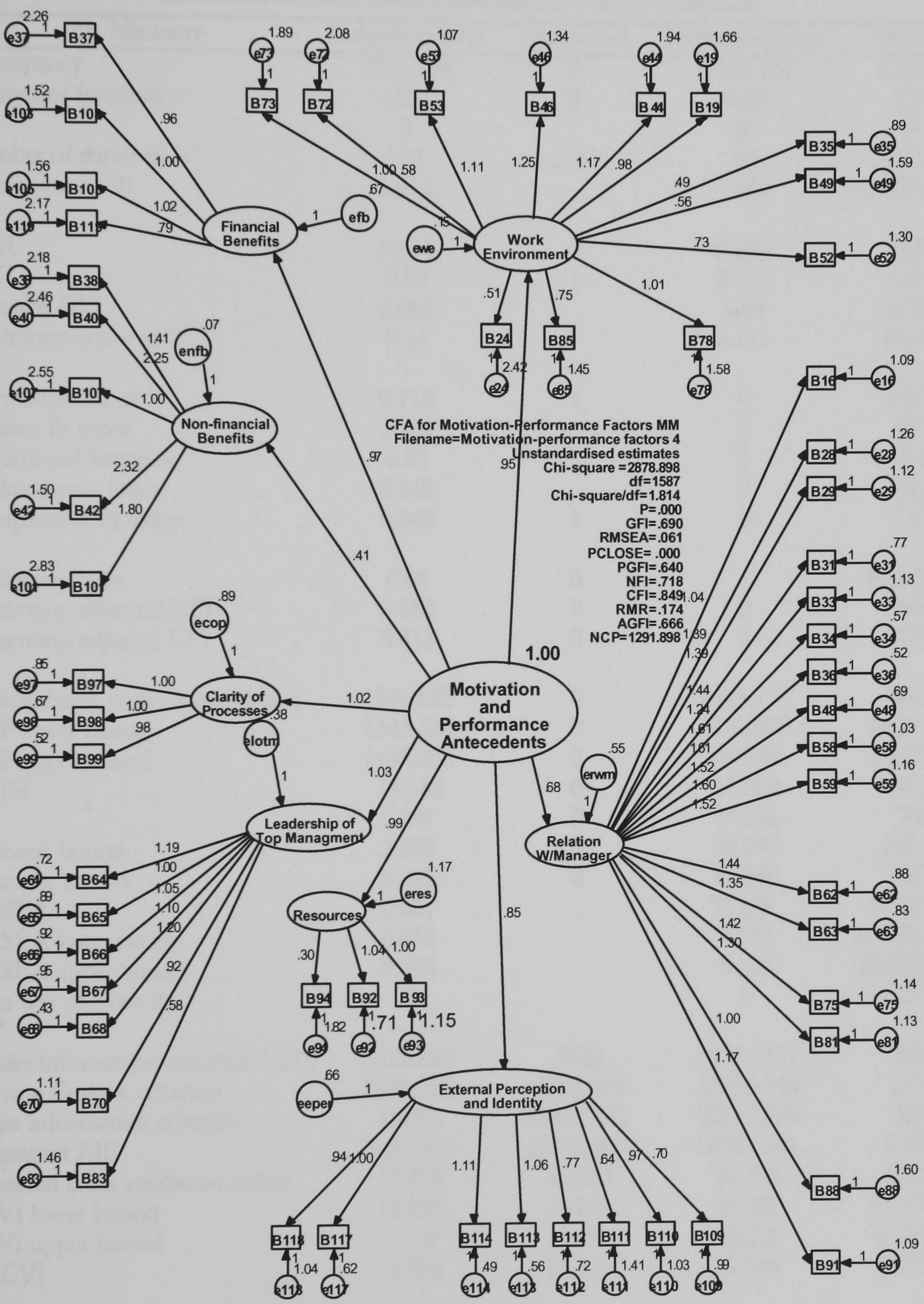


Figure L.8 The Motivation and Performance Antecedents Measurement Model with Unstandardised Estimates (Model 4)

Table L.7 Goodness-of-Fit Statistics for the Motivation and Performance Antecedents Measurement Model (Model 4)

Fit Measure	Default model	Saturated	Independence	Macro
Discrepancy	2878.898	0	10197.157	CMIN
Degrees of freedom	1587	0	1653	DF
P	0		0	P
Number of parameters	124	1711	58	NPAR
Discrepancy / df	1.814		6.169	CMINDF
RMR	0.174	0	0.961	RMR
GFI	0.69	1	0.121	GFI
Adjusted GFI	0.666		0.09	AGFI
Parsimony-adjusted GFI	0.64		0.116	PGFI
Normed fit index	0.718	1	0	NFI
Relative fit index	0.706		0	RFI
Incremental fit index	0.85	1	0	IFI
Tucker-Lewis index	0.843		0	TLI
Comparative fit index	0.849	1	0	CFI
Parsimony ratio	0.96	0	1	PRATIO
Parsimony-adjusted NFI	0.689	0	0	PNFI
Parsimony-adjusted CFI	0.815	0	0	PCFI
Noncentrality parameter estimate	1291.898	0	8544.157	NCP
NCP lower bound	1145.524	0	8229.036	NCPLO
NCP upper bound	1446.058	0	8865.92	NCPHI
FMIN	13.328	0	47.209	FMIN
F0	5.981	0	39.556	F0
F0 lower bound	5.303	0	38.097	F0LO
F0 upper bound	6.695	0	41.046	F0HI
RMSEA	0.061		0.155	RMSEA
RMSEA lower bound	0.058		0.152	RMSEALO
RMSEA upper bound	0.065		0.158	RMSEAHI
P for test of close fit	0		0	PCLOSE
Akaike information criterion (AIC)	3126.898	3422	10313.157	AIC
Browne-Cudeck criterion	3220.096	4707.975	10356.749	BCC
Bayes information criterion	4049.5	16152.422	10744.696	BIC
Consistent AIC	3670.005	10916.004	10567.191	CAIC
Expected cross validation index	14.476	15.843	47.746	ECVI
ECVI lower bound	13.799	15.843	46.287	ECVILO
ECVI upper bound	15.19	15.843	49.236	ECVIHI
MECVI	14.908	21.796	47.948	MECVI
Hoelter .05 index	127		38	HFIVE
Hoelter .01 index	130		38	HONE

Table L.8 Modification Indexes for the Motivation and Performance Antecedents Measurement Model (Model 4)

Covariances: (MIs>11 shown)			M.I.	Par Change
e117	<---------->	e118	18.238	0.260
e107	<---------->	e78	17.271	0.592
e36	<---------->	e67	16.468	0.222
e92	<---------->	e119	16.460	0.494
e94	<---------->	e62	15.466	0.353
e103	<---------->	e38	15.356	-0.555
e40	<---------->	e81	15.130	0.476
e93	<---------->	e111	13.819	-0.383
e78	<---------->	ewe	13.254	-0.204
e98	<---------->	e88	13.206	0.302
e73	<---------->	e59	13.195	0.386
e33	<---------->	e29	13.007	0.287
e73	<---------->	e72	12.865	0.501
e49	<---------->	erwm	12.681	0.245
e98	<---------->	e35	12.551	-0.221
e88	<---------->	ecop	12.288	0.336
e88	<---------->	e110	12.110	-0.320
e75	<---------->	e24	12.037	-0.403
e107	<---------->	e105	11.920	0.529
e16	<---------->	e49	11.782	0.315
e44	<---------->	enfb	11.583	0.153
e35	<---------->	e52	11.561	0.258
e107	<---------->	efb	11.526	0.418
e29	<---------->	e28	11.343	0.284
e40	<---------->	e103	11.089	0.517
Regression Weights:			M.I.	Par Change
B81	<----------	Non-financial_Benefits	6.006	0.417
B81	<----------	Financial_Benefits	5.947	0.157
B73	<----------	Relation_W/Manager	5.935	0.235
B81	<----------	Leadership of_Top Managment	5.561	0.149
B107	<----------	Financial_Benefits	5.412	0.223
B78	<----------	Clarity of_Processes	5.364	0.154
B75	<----------	Work_Environment	5.285	0.176
B49	<----------	Relation_W/Manager	5.198	0.199
B36	<----------	External Perception_and Identity	5.158	-0.106
B78	<----------	Resources	5.008	0.146
B81	<----------	Clarity of_Processes	4.945	0.124
B42	<----------	Relation_W/Manager	4.803	-0.203
B48	<----------	Resources	4.712	-0.095
B44	<----------	Resources	4.549	0.155
B112	<----------	Relation_W/Manager	4.414	-0.127
B81	<----------	Motivation_and_Performance_Antecedents	4.226	0.159
B98	<----------	Leadership of_Top Managment	4.220	-0.115
B98	<----------	Relation_W/Manager	4.214	-0.134
B119	<----------	Clarity of_Processes	4.197	-0.162
B112	<----------	Work_Environment	4.087	-0.125

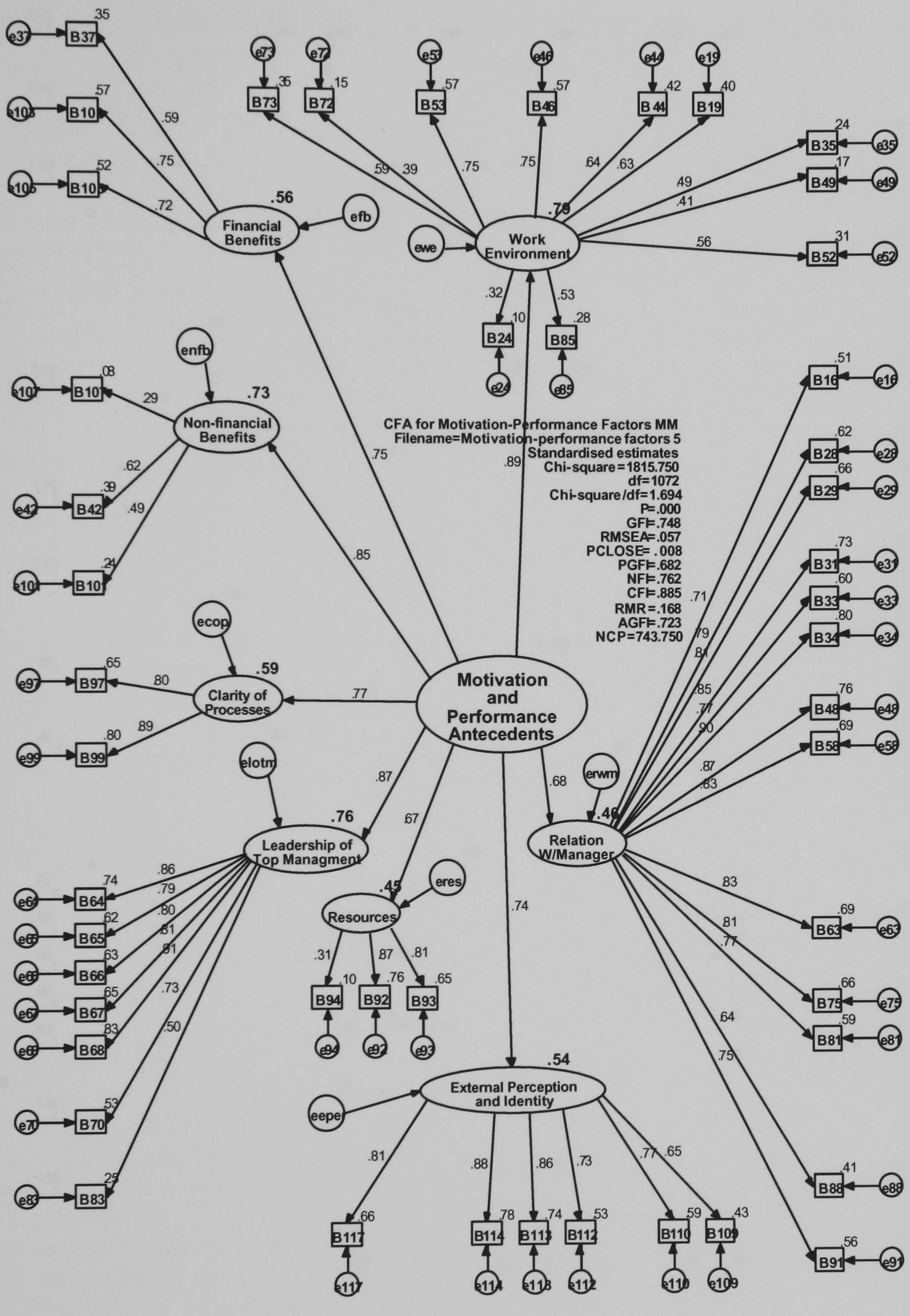


Figure L.9 The Motivation and Performance Antecedents Measurement Model with Standardised Estimates (Model 5)

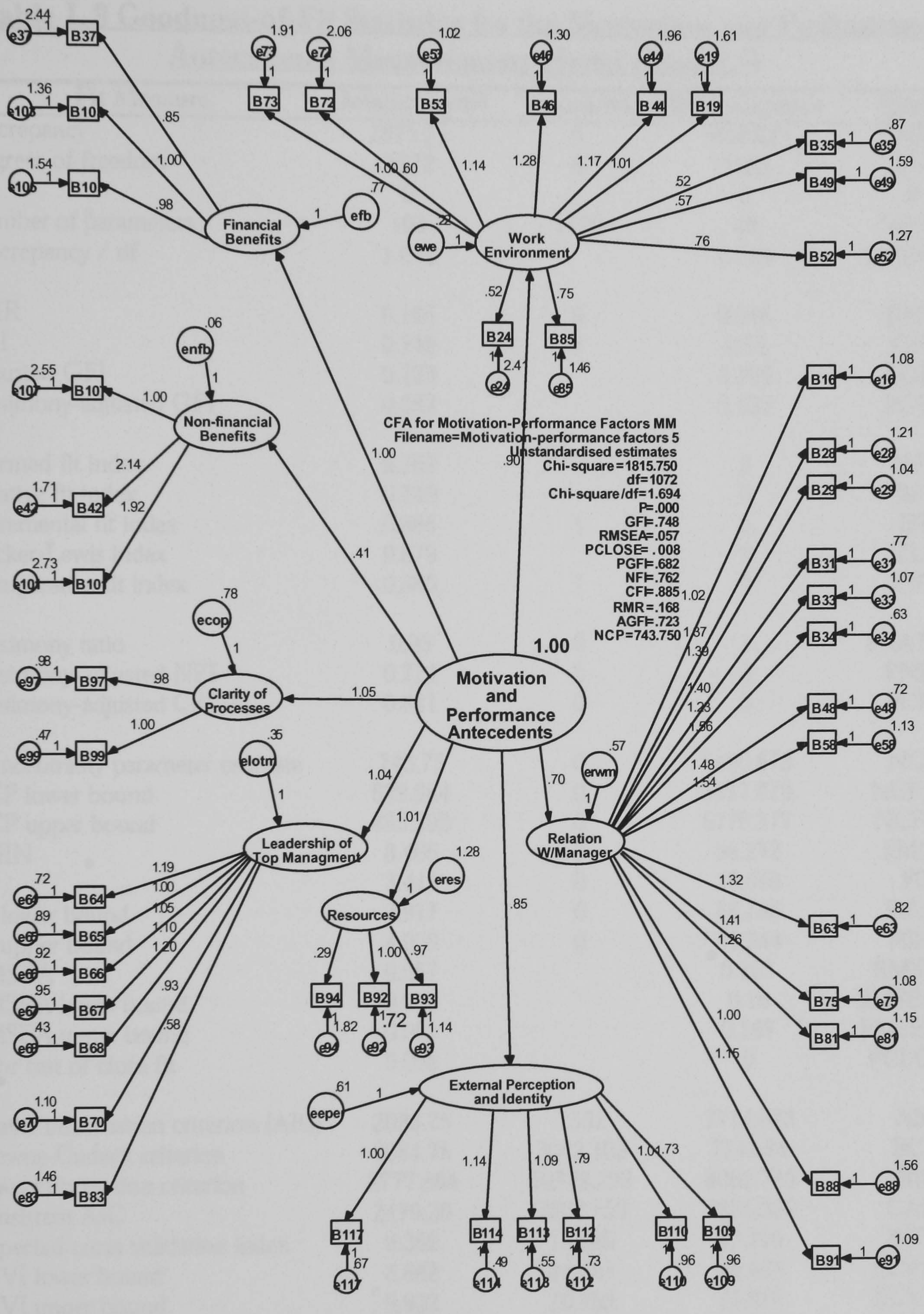


Figure L.10 The Motivation and Performance Antecedents Measurement Model with Unstandardised Estimates (Model 5)

Table L.9 Goodness-of-Fit Statistics for the Motivation and Performance Antecedents Measurement Model (Model 5)

Fit Measure	Default model	Saturated	Independence	Macro
Discrepancy	1815.75	0	7618.673	CMIN
Degrees of freedom	1072	0	1128	DF
P	0		0	P
Number of parameters	104	1176	48	NPAR
Discrepancy / df	1.694		6.754	CMINDF
RMR	0.168	0	0.948	RMR
GFI	0.748	1	0.14	GFI
Adjusted GFI	0.723		0.104	AGFI
Parsimony-adjusted GFI	0.682		0.135	PGFI
Normed fit index	0.762	1	0	NFI
Relative fit index	0.749		0	RFI
Incremental fit index	0.886	1	0	IFI
Tucker-Lewis index	0.879		0	TLI
Comparative fit index	0.885	1	0	CFI
Parsimony ratio	0.95	0	1	PRATIO
Parsimony-adjusted NFI	0.724	0	0	PNFI
Parsimony-adjusted CFI	0.841	0	0	PCFI
Noncentrality parameter estimate	743.75	0	6490.673	NCP
NCP lower bound	629.964	0	6217.679	NCPLO
NCP upper bound	865.393	0	6770.277	NCPHI
FMIN	8.406	0	35.272	FMIN
F0	3.443	0	30.049	F0
F0 lower bound	2.917	0	28.786	F0LO
F0 upper bound	4.006	0	31.344	F0HI
RMSEA	0.057		0.163	RMSEA
RMSEA lower bound	0.052		0.16	RMSEALO
RMSEA upper bound	0.061		0.167	RMSEAHI
P for test of close fit	0.008		0	PCLOSE
Akaike information criterion (AIC)	2023.75	2352	7714.673	AIC
Browne-Cudeck criterion	2084.78	3042.108	7742.84	BCC
Bayes information criterion	2777.864	10879.292	8062.725	BIC
Consistent AIC	2479.26	7502.759	7924.908	CAIC
Expected cross validation index	9.369	10.889	35.716	ECVI
ECVI lower bound	8.842	10.889	34.452	ECVILO
ECVI upper bound	9.932	10.889	37.011	ECVIHI
MECVI	9.652	14.084	35.846	MECVI
Hoelter .05 index	137		35	HFIVE
Hoelter .01 index	141		36	HONE

Table L.10 Modification Indexes for the Motivation and Performance Antecedents Measurement Model (Model 5)

Covariances:	(MIs>10 shown)		M.I.	Par Change
e49	<---------->	erwm	15.311	0.277
e107	<---------->	efb	13.746	0.497
e107	<---------->	ewe	13.730	-0.283
e88	<---------->	e110	12.922	-0.320
e75	<---------->	e24	12.510	-0.405
e73	<---------->	e72	12.442	0.495
e16	<---------->	e49	11.138	0.307
e52	<---------->	e44	10.808	-0.377
e109	<---------->	e58	10.803	-0.250
e88	<---------->	e65	10.572	-0.277
e37	<---------->	ewe	10.568	0.254
e37	<---------->	e53	10.500	0.397
e107	<---------->	e105	10.441	0.501
e75	<---------->	e34	10.393	-0.202
e67	<---------->	e68	10.373	0.170
e81	<---------->	e58	10.319	0.267
e35	<---------->	e49	10.147	0.262
e42	<---------->	ewe	10.097	0.213
e112	<---------->	e35	10.037	-0.183
Regression Weights:			M.I.	Par Change
B81	<----------	Financial_Benefits	6.754	0.164
B44	<----------	Resources	6.690	0.183
B49	<----------	Relation_W/Manager	6.611	0.221
B73	<----------	Relation_W/Manager	6.484	0.244
B107	<----------	Financial_Benefits	6.140	0.229
B81	<----------	Leadership of_Top Managment	5.395	0.150
B31	<----------	External Perception_and Identity	5.256	-0.130
B37	<----------	Work_Environment	5.042	0.264
B112	<----------	Relation_W/Manager	4.950	-0.134
B81	<----------	Clarity of_Processes	4.869	0.129
B73	<----------	Leadership of_Top Managment	4.671	0.179
B112	<----------	Work_Environment	4.469	-0.134
B48	<----------	Resources	4.255	-0.090
Resources	<----------	Relation_W/Manager	4.137	-0.185
B70	<----------	Relation_W/Manager	4.042	0.147

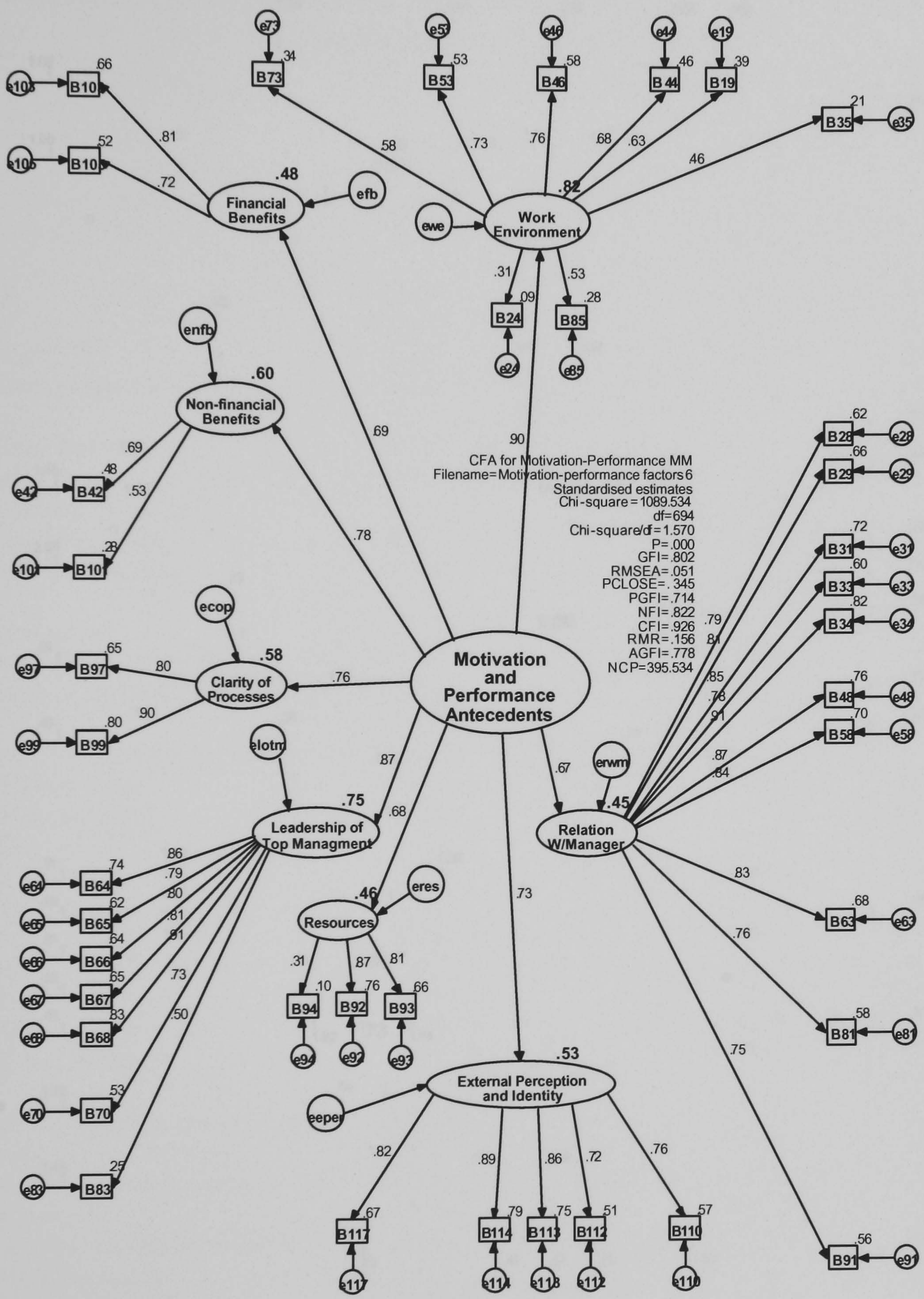


Figure L.11 The Motivation and Performance Antecedents Measurement Model with Standardised Estimates (Model 6)

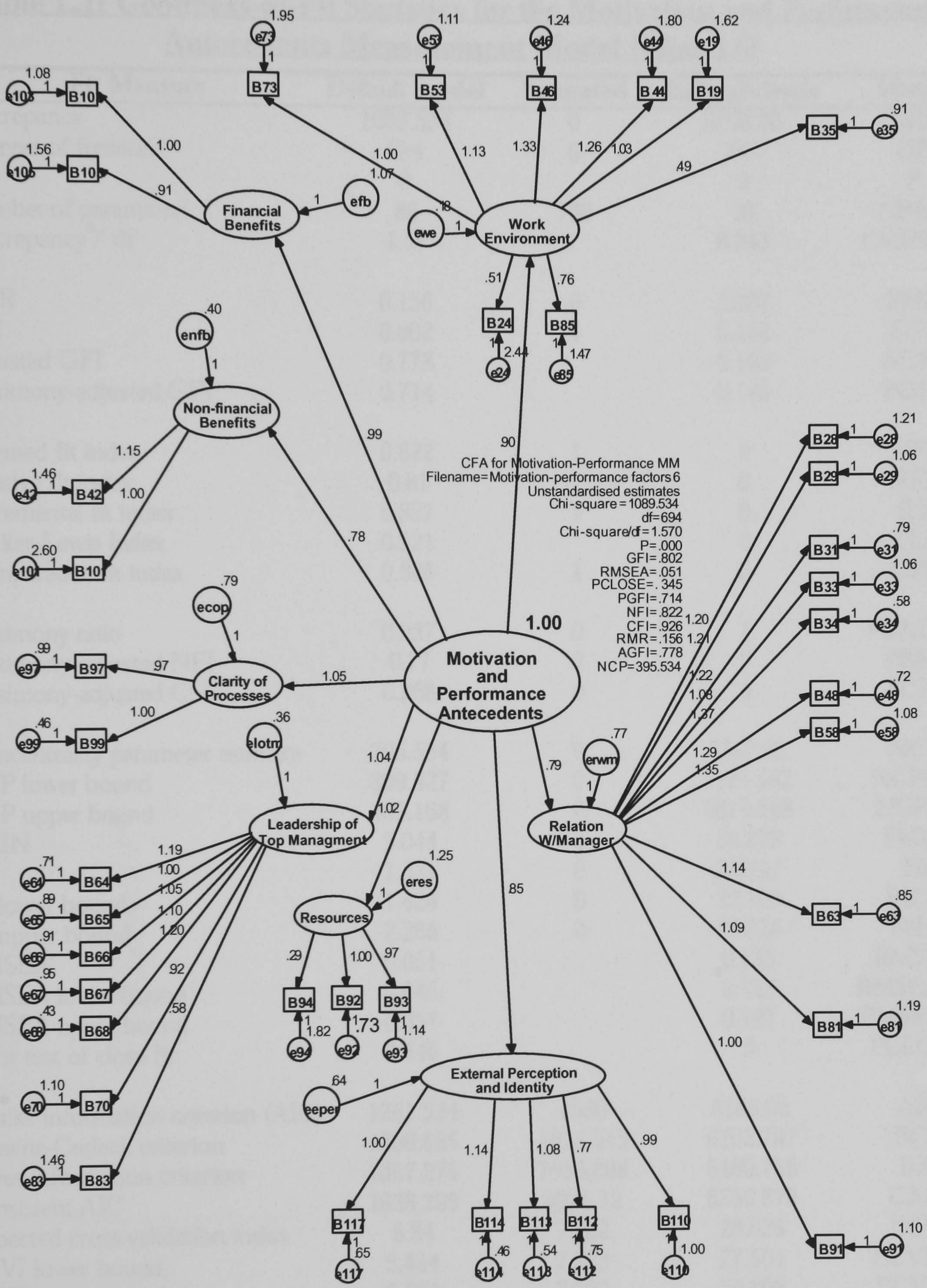


Figure L.12 The Motivation and Performance Antecedents Measurement Model with Unstandardised Estimates (Model 6)

Table L.11 Goodness-of-Fit Statistics for the Motivation and Performance Antecedents Measurement Model (Model 6)

Fit Measure	Default model	Saturated	Independence	Macro
Discrepancy	1089.534	0	6108.06	CMIN
Degrees of freedom	694	0	741	DF
P	0		0	P
Number of parameters	86	780	39	NPAR
Discrepancy / df	1.57		8.243	CMINDF
RMR	0.156	0	1.007	RMR
GFI	0.802	1	0.152	GFI
Adjusted GFI	0.778		0.108	AGFI
Parsimony-adjusted GFI	0.714		0.145	PGFI
Normed fit index	0.822	1	0	NFI
Relative fit index	0.81		0	RFI
Incremental fit index	0.927	1	0	IFI
Tucker-Lewis index	0.921		0	TLI
Comparative fit index	0.926	1	0	CFI
Parsimony ratio	0.937	0	1	PRATIO
Parsimony-adjusted NFI	0.77	0	0	PNFI
Parsimony-adjusted CFI	0.868	0	0	PCFI
Noncentrality parameter estimate	395.534	0	5367.06	NCP
NCP lower bound	309.827	0	5121.162	NCPLO
NCP upper bound	489.168	0	5619.508	NCPHI
FMIN	5.044	0	28.278	FMIN
F0	1.831	0	24.847	F0
F0 lower bound	1.434	0	23.709	F0LO
F0 upper bound	2.265	0	26.016	F0HI
RMSEA	0.051		0.183	RMSEA
RMSEA lower bound	0.045		0.179	RMSEALO
RMSEA upper bound	0.057		0.187	RMSEAHI
P for test of close fit	0.345		0	PCLOSE
Akaike information criterion (AIC)	1261.534	1560	6186.06	AIC
Browne-Cudeck criterion	1300.625	1914.545	6203.787	BCC
Bayes information criterion	1867.271	7053.898	6460.755	BIC
Consistent AIC	1638.205	4976.32	6356.876	CAIC
Expected cross validation index	5.84	7.222	28.639	ECVI
ECVI lower bound	5.444	7.222	27.501	ECVILO
ECVI upper bound	6.274	7.222	29.808	ECVIHI
MECVI	6.021	8.864	28.721	MECVI
Hoelter .05 index	150		29	HFIVE
Hoelter .01 index	156		30	HONE

Table L.12 Modification Indexes for the Motivation and Performance Antecedents Measurement Model (Model 6)

Covariances:	(MIs>7 shown)		M.I.	Par Change
e58	<---------->	e33	12.441	-0.279
e42	<---------->	ewe	12.280	0.229
e81	<---------->	e58	11.031	0.277
e73	<---------->	elotm	10.995	0.252
e67	<---------->	e68	10.802	0.175
e33	<---------->	e67	10.387	-0.241
e73	<---------->	ewe	10.381	-0.212
e112	<---------->	e35	9.940	-0.188
e73	<---------->	e42	9.451	-0.424
erwm	<---------->	eres	8.938	-0.259
e33	<---------->	e29	8.920	0.231
e73	<---------->	erwm	8.669	0.274
e70	<---------->	e83	8.658	0.266
e113	<---------->	e67	8.603	-0.172
e29	<---------->	e28	8.160	0.236
e68	<---------->	eeper	7.890	0.135
e73	<---------->	e33	7.588	-0.287
e48	<---------->	e19	7.436	-0.224
e64	<---------->	e65	7.391	0.168
e94	<---------->	e83	7.227	0.304
e48	<---------->	e91	7.115	0.177
e103	<---------->	e58	7.113	0.267
e58	<---------->	e67	7.005	0.204
Regression Weights:			M.I.	Par Change
B73	<----------	Relation_W/Manager	7.434	0.231
B81	<----------	Financial_Benefits	7.374	0.163
B81	<----------	Clarity of_Processes	6.244	0.148
B81	<----------	Leadership of_Top Managment	6.005	0.161
B31	<----------	Financial_Benefits	4.784	-0.110
B73	<----------	Leadership of_Top Managment	4.707	0.182
B58	<----------	Financial_Benefits	4.503	0.124
Resources	<----------	Relation_W/Manager	4.452	-0.167
B31	<----------	External Perception_and Identity	4.446	-0.121
B29	<----------	Resources	4.420	0.109
B81	<----------	Motivation_and_Performance_Anteced ents	4.072	0.163

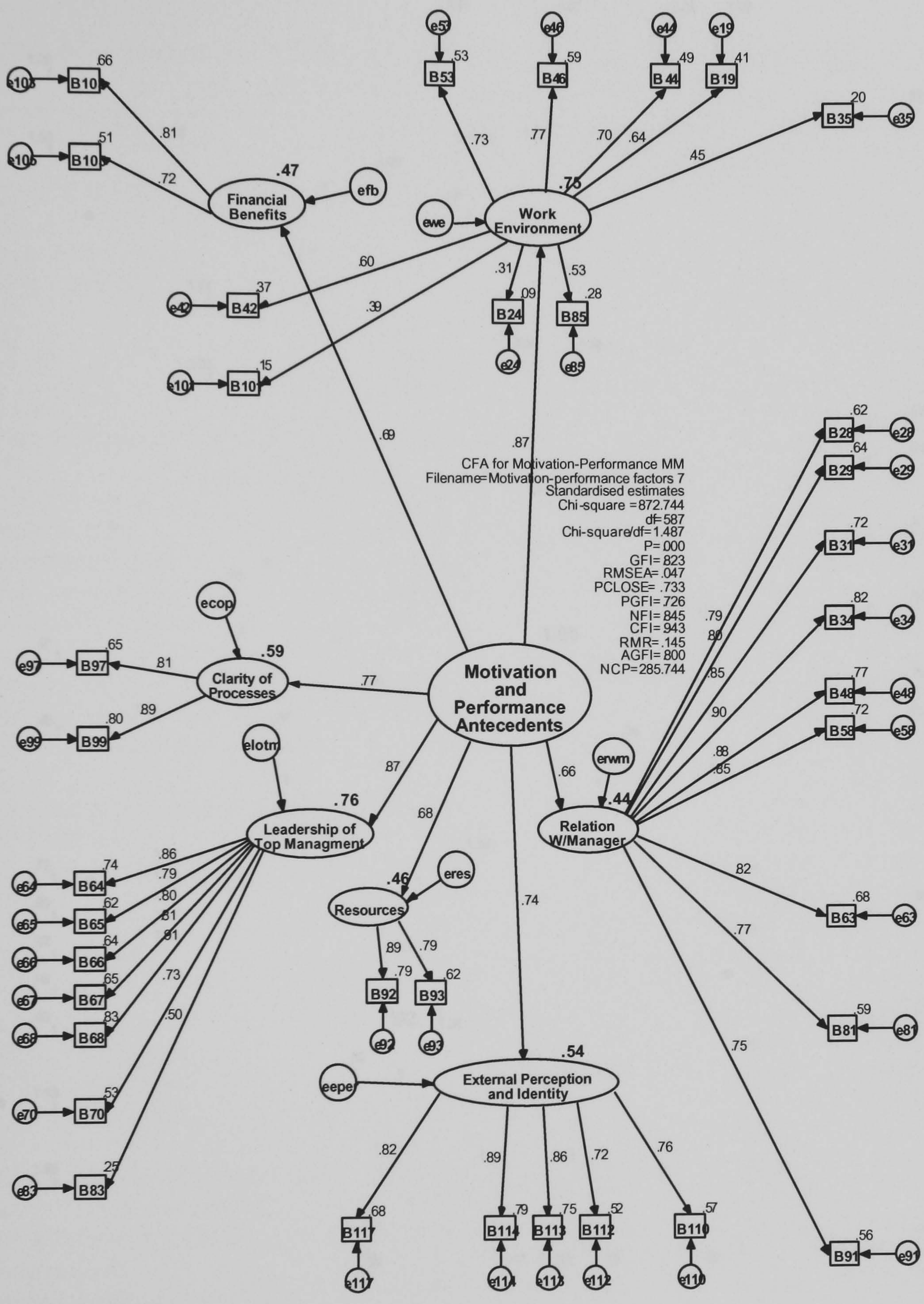


Figure L.13 The Motivation and Performance Antecedents Measurement Model with Standardised Estimates (Model 7)

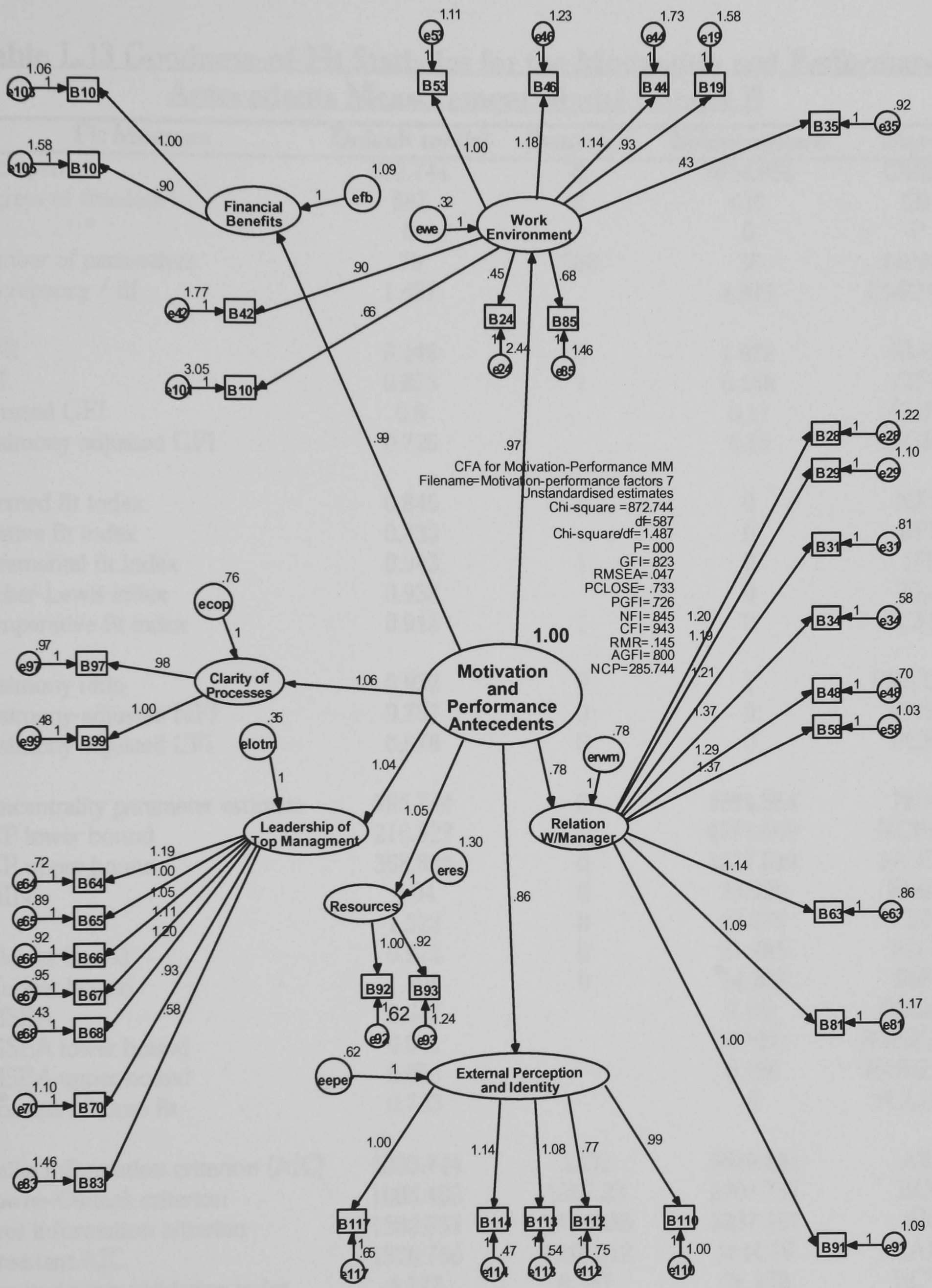


Figure L.14 The Motivation and Performance Antecedents Measurement Model with Unstandardised Estimates (Model 7)

Table L.13 Goodness-of-Fit Statistics for the Motivation and Performance Antecedents Measurement Model (Model 7)

Fit Measure	Default model	Saturated	Independence	Macro
Discrepancy	872.744	0	5614.884	CMIN
Degrees of freedom	587	0	630	DF
P	0		0	P
Number of parameters	79	666	36	NPAR
Discrepancy / df	1.487		8.913	CMINDF
RMR	0.145	0	1.022	RMR
GFI	0.823	1	0.158	GFI
Adjusted GFI	0.8		0.11	AGFI
Parsimony-adjusted GFI	0.726		0.15	PGFI
Normed fit index	0.845	1	0	NFI
Relative fit index	0.833		0	RFI
Incremental fit index	0.943	1	0	IFI
Tucker-Lewis index	0.938		0	TLI
Comparative fit index	0.943	1	0	CFI
Parsimony ratio	0.932	0	1	PRATIO
Parsimony-adjusted NFI	0.787	0	0	PNFI
Parsimony-adjusted CFI	0.878	0	0	PCFI
Noncentrality parameter estimate	285.744	0	4984.884	NCP
NCP lower bound	210.527	0	4748.669	NCPLO
NCP upper bound	368.935	0	5227.628	NCPHI
FMIN	4.04	0	25.995	FMIN
F0	1.323	0	23.078	F0
F0 lower bound	0.975	0	21.985	F0LO
F0 upper bound	1.708	0	24.202	F0HI
RMSEA	0.047		0.191	RMSEA
RMSEA lower bound	0.041		0.187	RMSEALO
RMSEA upper bound	0.054		0.196	RMSEAHI
P for test of close fit	0.733		0	PCLOSE
Akaike information criterion (AIC)	1030.744	1332	5686.884	AIC
Browne-Cudeck criterion	1063.403	1607.33	5701.767	BCC
Bayes information criterion	1580.854	5969.635	5937.567	BIC
Consistent AIC	1376.756	4249.012	5844.56	CAIC
Expected cross validation index	4.772	6.167	26.328	ECVI
ECVI lower bound	4.424	6.167	25.235	ECVILO
ECVI upper bound	5.157	6.167	27.452	ECVIHI
MECVI	4.923	7.441	26.397	MECVI
Hoelter .05 index	160		27	HFIVE
Hoelter .01 index	166		28	HONE

Table L.14 Modification Indexes for the Motivation and Performance Antecedents Measurement Model (Model 7)

Covariances: (MIs>6 shown)			M.I.	Par Change
e67	<---------->	e68	10.096	0.168
e29	<---------->	e28	9.932	0.267
e112	<---------->	e35	9.826	-0.188
erwm	<---------->	eres	9.199	-0.269
e113	<---------->	e67	8.837	-0.174
e70	<---------->	e83	8.738	0.267
e81	<---------->	e58	8.734	0.241
e64	<---------->	e65	7.860	0.174
e29	<---------->	eres	7.770	0.283
e42	<---------->	e101	7.247	0.445
e92	<---------->	e29	7.233	0.232
e58	<---------->	e29	7.179	-0.213
e103	<---------->	e58	7.089	0.262
e34	<---------->	e19	7.017	0.201
e53	<---------->	e101	6.960	-0.357
e68	<---------->	eeper	6.917	0.126
e117	<---------->	ewe	6.885	-0.128
e29	<---------->	ecop	6.583	0.211
e101	<---------->	efb	6.482	0.421
e48	<---------->	e91	6.466	0.168
e97	<---------->	e93	6.429	0.247
e65	<---------->	e66	6.257	0.170
e97	<---------->	e19	6.196	-0.250
e48	<---------->	e19	6.088	-0.199
e48	<---------->	e53	6.084	0.171
e64	<---------->	e67	6.062	-0.158
e117	<---------->	e85	6.057	-0.182
Regression Weights:			M.I.	Par Change
B81	<----------	Financial_Benefits	7.382	0.161
B81	<----------	Clarity of_Processes	6.392	0.150
B81	<----------	Leadership of_Top Managment	6.104	0.161
B29	<----------	Resources	5.817	0.125
B101	<----------	Financial_Benefits	4.904	0.208
Resources	<----------	Relation_W/Manager	4.603	-0.173
B31	<----------	Financial_Benefits	4.498	-0.108
B58	<----------	Financial_Benefits	4.321	0.119
B81	<----------	Motivation_and_Performance_Antecedents	4.320	0.168
B31	<----------	External Perception_and Identity	4.215	-0.119
B29	<----------	Clarity of_Processes	4.109	0.118
Relation_W/Manager	<----------	Resources	4.034	-0.091
B112	<----------	Relation_W/Manager	4.012	-0.107

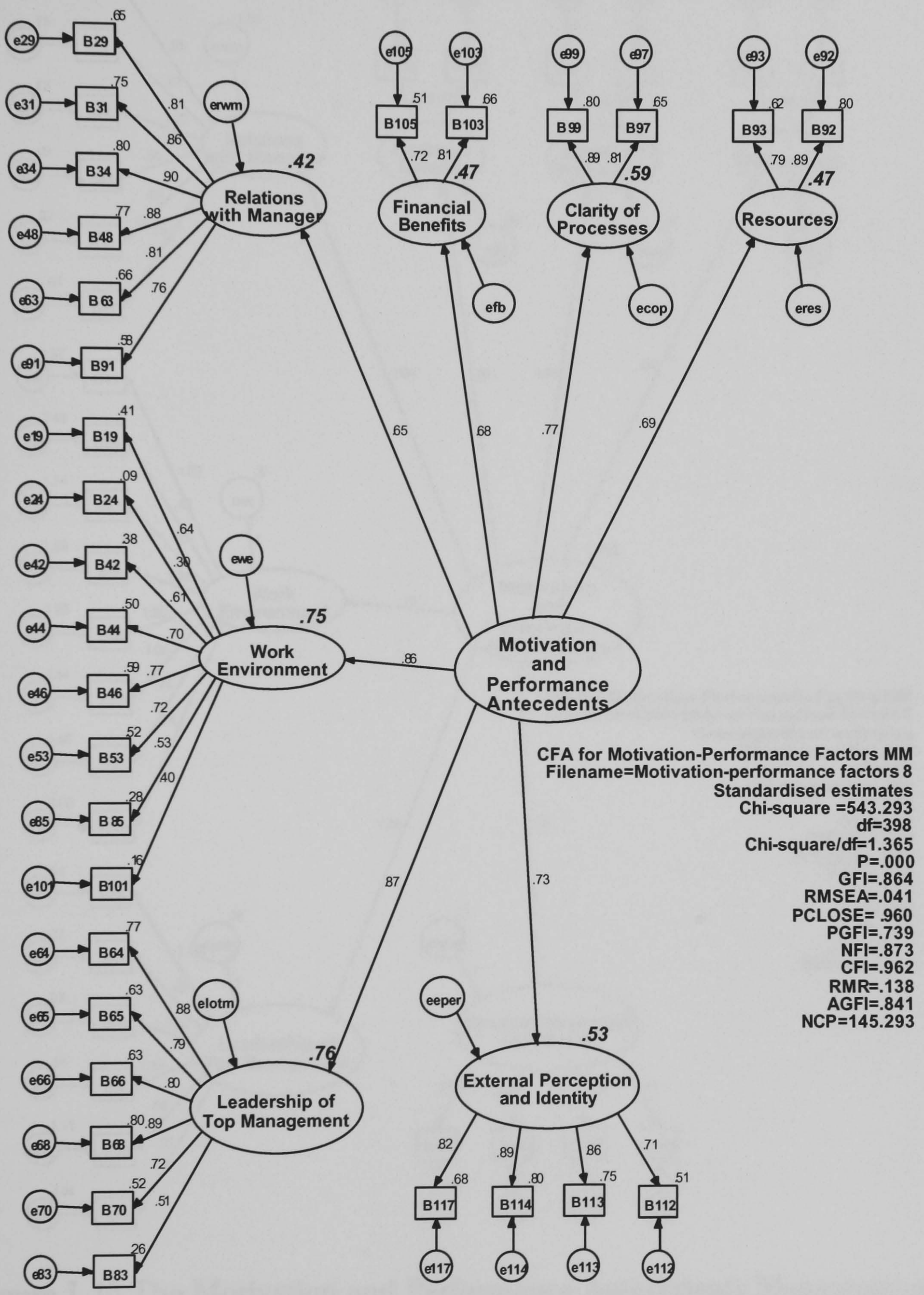


Figure L.15 The Motivation and Performance Antecedents Measurement Model with Standardised Estimates (Model 8)

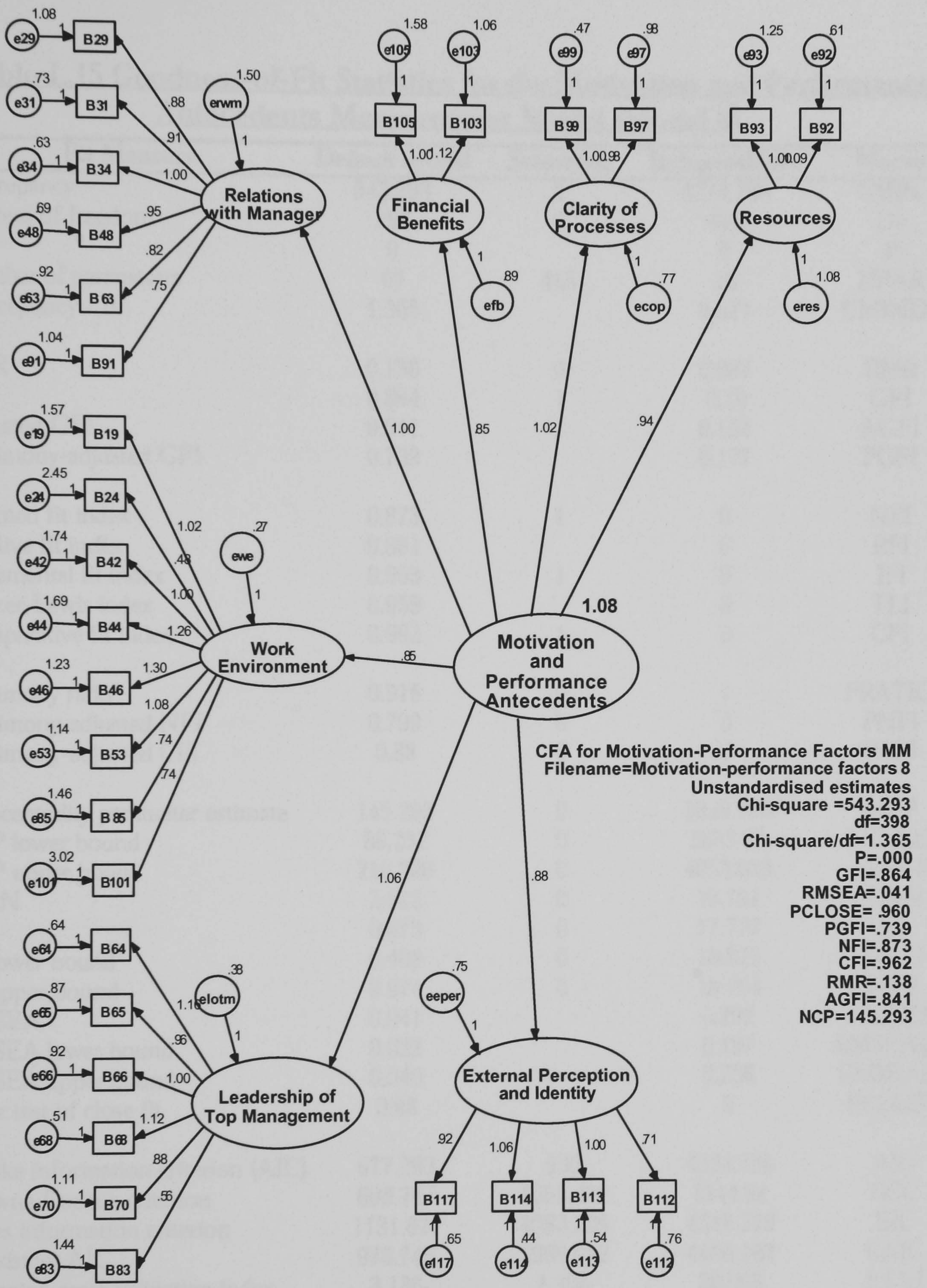


Figure L.16 The Motivation and Performance Antecedents Measurement Model with Unstandardised Estimates (Model 8)

Table L.15 Goodness-of-Fit Statistics for the Motivation and Performance Antecedents Measurement Model (Model 8)

Fit Measure	Default model	Saturated	Independence	Macro
Discrepancy	543.293	0	4274.786	CMIN
Degrees of freedom	398	0	435	DF
P	0		0	P
Number of parameters	67	465	30	NPAR
Discrepancy / df	1.365		9.827	CMINDF
RMR	0.138	0	0.987	RMR
GFI	0.864	1	0.19	GFI
Adjusted GFI	0.841		0.134	AGFI
Parsimony-adjusted GFI	0.739		0.177	PGFI
Normed fit index	0.873	1	0	NFI
Relative fit index	0.861		0	RFI
Incremental fit index	0.963	1	0	IFI
Tucker-Lewis index	0.959		0	TLI
Comparative fit index	0.962	1	0	CFI
Parsimony ratio	0.915	0	1	PRATIO
Parsimony-adjusted NFI	0.799	0	0	PNFI
Parsimony-adjusted CFI	0.88	0	0	PCFI
Noncentrality parameter estimate	145.293	0	3839.786	NCP
NCP lower bound	88.252	0	3633.82	NCPLO
NCP upper bound	210.396	0	4053.068	NCPHI
FMIN	2.515	0	19.791	FMIN
F0	0.673	0	17.777	F0
F0 lower bound	0.409	0	16.823	F0LO
F0 upper bound	0.974	0	18.764	F0HI
RMSEA	0.041		0.202	RMSEA
RMSEA lower bound	0.032		0.197	RMSEALO
RMSEA upper bound	0.049		0.208	RMSEAHI
P for test of close fit	0.96		0	PCLOSE
Akaike information criterion (AIC)	677.293	930	4334.786	AIC
Browne-Cudeck criterion	699.747	1085.838	4344.84	BCC
Bayes information criterion	1131.627	4083.209	4538.219	BIC
Consistent AIC	970.746	2966.652	4466.183	CAIC
Expected cross validation index	3.136	4.306	20.068	ECVI
ECVI lower bound	2.872	4.306	19.115	ECVILO
ECVI upper bound	3.437	4.306	21.056	ECVIHI
MECVI	3.24	5.027	20.115	MECVI
Hoelter .05 index	178		25	HFIVE
Hoelter .01 index	186		26	HONE

Table L.16 Modification Indexes for the Motivation and Performance Antecedents Measurement Model (Model 8)

Covariances:	(MIs>5 shown)		M.I.	Par Change
erwm	<---------->	eres	8.125	-0.324
e68	<---------->	eeper	7.965	0.161
e70	<---------->	e83	7.795	0.253
e53	<---------->	e101	7.387	-0.371
e34	<---------->	e19	7.386	0.221
e29	<---------->	eres	6.800	0.244
e53	<---------->	e112	6.772	-0.185
e97	<---------->	e93	6.491	0.249
e42	<---------->	e101	6.394	0.415
e114	<---------->	ewe	6.244	0.104
e29	<---------->	ecop	6.204	0.207
e42	<---------->	e83	6.114	-0.280
e48	<---------->	e19	6.061	-0.204
e101	<---------->	efb	5.965	0.362
e19	<---------->	e97	5.896	-0.245
e117	<---------->	ewe	5.801	-0.110
e66	<---------->	e65	5.785	0.164
e48	<---------->	e53	5.719	0.173
e29	<---------->	e99	5.395	0.170
e85	<---------->	e117	5.284	-0.172
e91	<---------->	e105	5.116	-0.233
e46	<---------->	e114	5.059	0.152
Regression Weights:			M.I.	Par Change
B29	<----------	Resources	6.141	0.140
B29	<----------	Clarity of_Processes	4.905	0.129
B31	<----------	External Perception_and Identity	4.680	-0.114
B101	<----------	Financial_Benefits	4.533	0.222
Resources	<----------	Relations_with Manager	4.215	-0.112
B117	<----------	Financial_Benefits	4.153	0.107

APPENDIX M
AMOS ANALYSIS RESULTS FOR THE MOTIVATION AND PERFORMANCE STRUCTURAL EQUATION MODEL

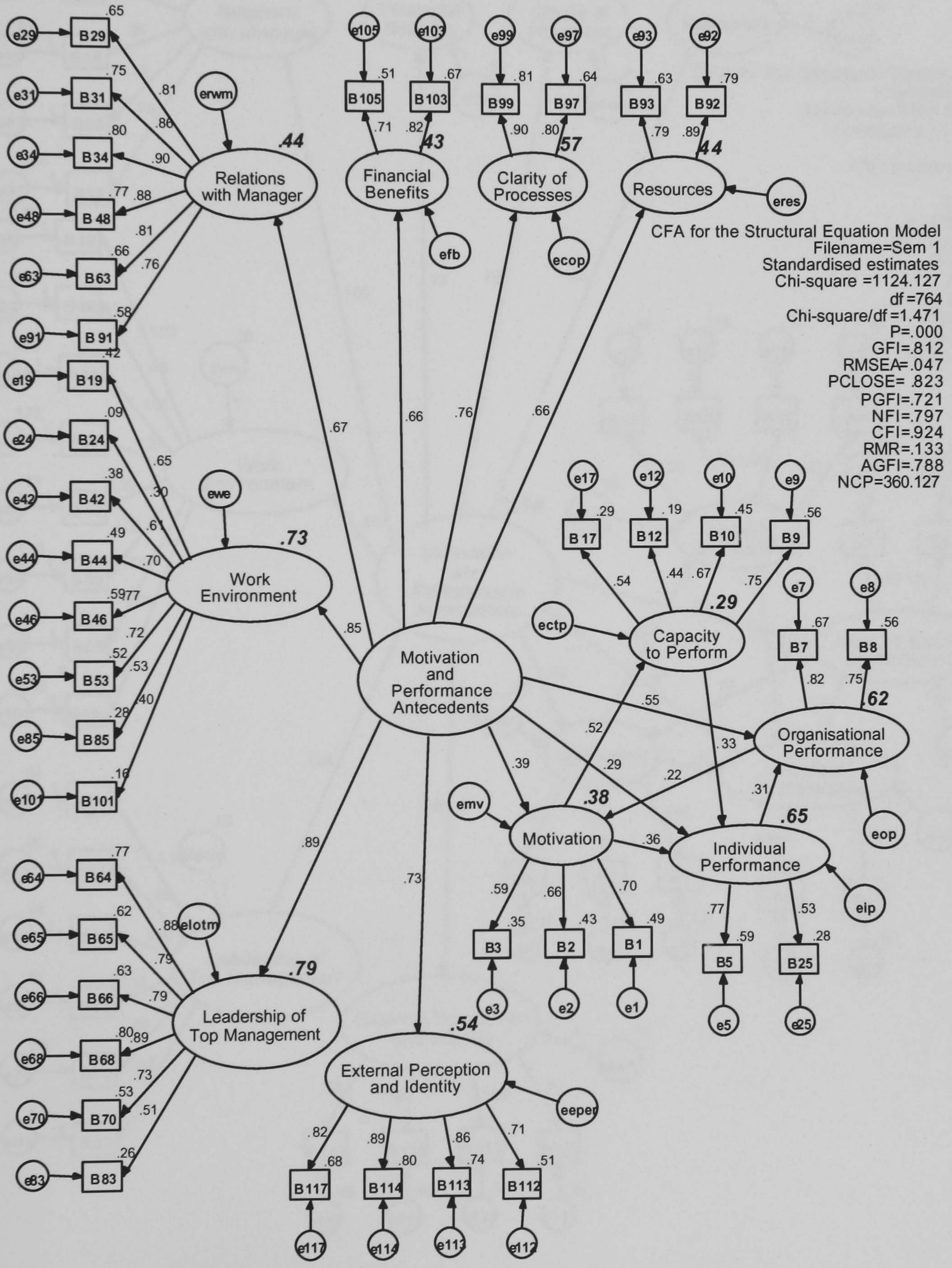


Figure M.1 The Hypothesised Structural Equation Model of Motivation and Performance with Standardised Estimates

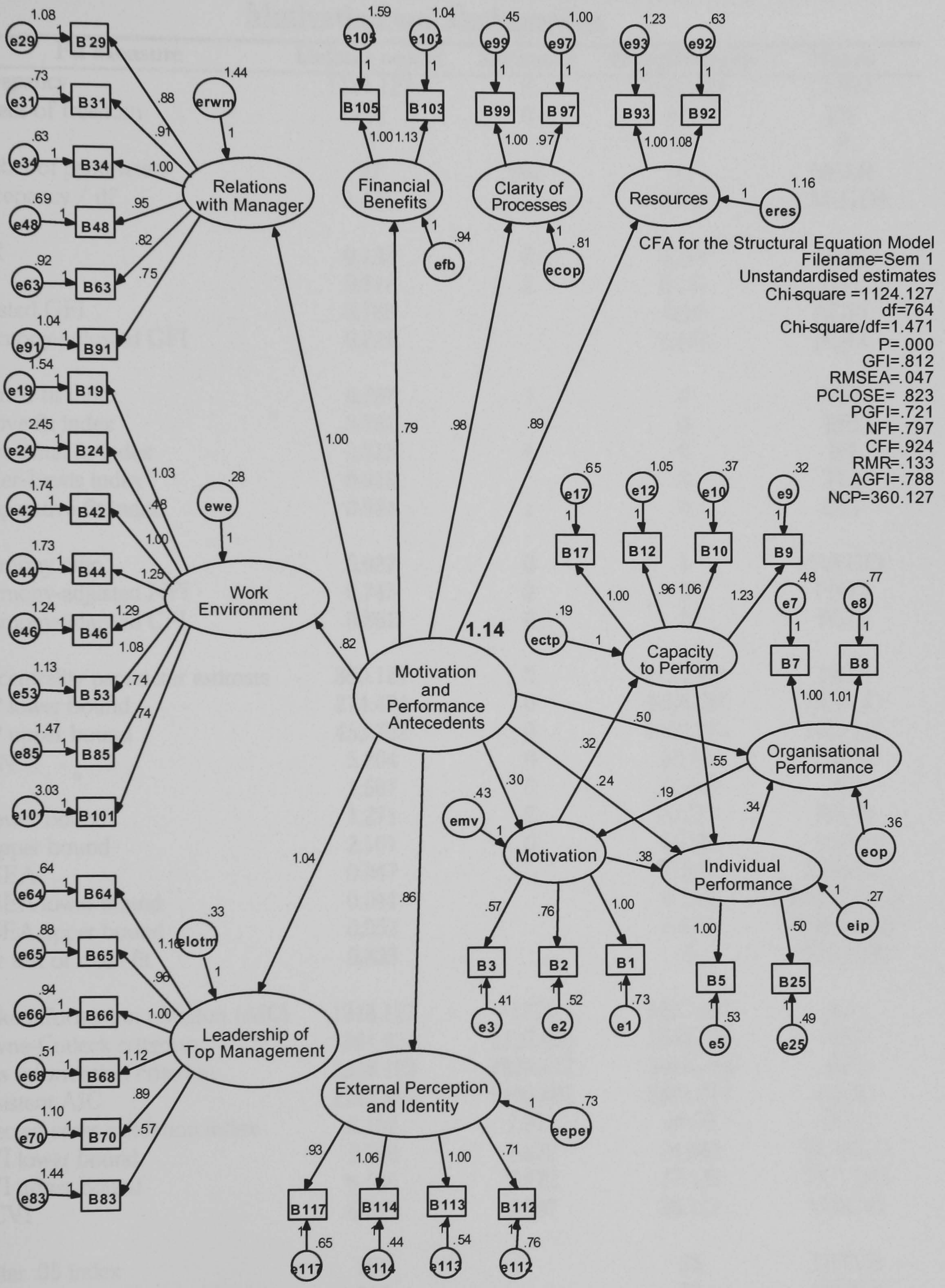


Figure M.2 The Hypothesised Structural Equation Model of Motivation and Performance with Unstandardised Estimates

Table M.1 Goodness-of-Fit Statistics for the Structural Equation Model of Motivation and Performance

Fit Measure	Default model	Saturated	Independence	Macro
Discrepancy	1124.127	0	5540.401	CMIN
Degrees of freedom	764	0	820	DF
P	0		0	P
Number of parameters	97	861	41	NPAR
Discrepancy / df	1.471		6.757	CMINDF
RMR	0.133	0	0.777	RMR
GFI	0.812	1	0.191	GFI
Adjusted GFI	0.788		0.15	AGFI
Parsimony-adjusted GFI	0.721		0.181	PGFI
Normed fit index	0.797	1	0	NFI
Relative fit index	0.782		0	RFI
Incremental fit index	0.925	1	0	IFI
Tucker-Lewis index	0.918		0	TLI
Comparative fit index	0.924	1	0	CFI
Parsimony ratio	0.932	0	1	PRATIO
Parsimony-adjusted NFI	0.743	0	0	PNFI
Parsimony-adjusted CFI	0.861	0	0	PCFI
Noncentrality parameter estimate	360.127	0	4720.401	NCP
NCP lower bound	274.474	0	4488.087	NCPLO
NCP upper bound	453.762	0	4959.325	NCPHI
FMIN	5.204	0	25.65	FMIN
F0	1.667	0	21.854	F0
F0 lower bound	1.271	0	20.778	F0LO
F0 upper bound	2.101	0	22.96	F0HI
RMSEA	0.047		0.163	RMSEA
RMSEA lower bound	0.041		0.159	RMSEALO
RMSEA upper bound	0.052		0.167	RMSEAHI
P for test of close fit	0.823		0	PCLOSE
Akaike information criterion (AIC)	1318.127	1722	5622.401	AIC
Browne-Cudeck criterion	1364.954	2137.655	5642.194	BCC
Bayes information criterion	2006.193	7829.477	5913.233	BIC
Consistent AIC	1742.977	5493.092	5801.977	CAIC
Expected cross validation index	6.102	7.972	26.03	ECVI
ECVI lower bound	5.706	7.972	24.954	ECVILO
ECVI upper bound	6.536	7.972	27.136	ECVIHI
MECVI	6.319	9.897	26.121	MECVI
Hoelter .05 index	160		35	HFIVE
Hoelter .01 index	165		36	HONE

Table M.2 Modification Indexes for the Structural Equation Model of Motivation and Performance

Covariances:	**(MIs>7 shown)**		**M.I.**	**Par Change**
E10	<---------->	e99	16.205	-0.181
efb	<---------->	Eip	12.069	-0.251
E17	<---------->	Eop	9.425	-0.149
erwm	<---------->	ectp	9.097	0.149
E10	<---------->	ecop	9.044	-0.155
e8	<---------->	e17	8.081	-0.164
E19	<---------->	e9	7.877	-0.168
e2	<---------->	efb	7.667	-0.187
erwm	<---------->	emv	7.648	0.208
erwm	<---------->	eres	7.616	-0.315
e8	<---------->	e12	7.549	0.196
e7	<---------->	e48	7.548	0.149
e70	<---------->	e83	7.39	0.244
efb	<---------->	emv	7.306	-0.193
e53	<---------->	e101	7.29	-0.369
e9	<---------->	ewe	7.106	-0.093
e68	<---------->	eep	7.106	0.149
e9	<---------->	eip	7.046	-0.103
Regression Weights:			**M.I.**	**Par Change**
Relations_with Manager	<----------	Capacity_to Perform	12.191	0.692
B2	<----------	Financial_Benefits	10.296	-0.152
B1	<----------	Work_Environment	7.579	0.189
Relations_with Manager	<----------	IP	6.983	0.307
B1	<----------	Financial_Benefits	6.921	0.152
Financial_Benefits	<----------	IP	6.866	-0.289
B92	<----------	Capacity_to Perform	6.474	-0.447
B29	<----------	Resources	6.156	0.139
B34	<----------	Capacity_to Perform	5.223	0.313
B12	<----------	Relations_with Manager	5.209	0.105
Relations_with Manager	<----------	MV	5.203	0.281
B12	<----------	Resources	4.974	0.12
B101	<----------	Financial_Benefits	4.957	0.234
B29	<----------	Clarity of_Processes	4.945	0.129
B12	<----------	Clarity of_Processes	4.92	0.123
B117	<----------	OP	4.912	0.151
B31	<----------	External_Perception	4.854	-0.117
B92	<----------	IP	4.827	-0.226
B1	<----------	MFS	4.797	0.142
Financial_Benefits	<----------	MV	4.726	-0.254
B66	<----------	MV	4.715	-0.209
B70	<----------	IP	4.649	0.208
B117	<----------	Financial_Benefits	4.56	0.113
B1	<----------	Resources	4.114	0.1

Legend: MPAS ≡ Motivation and Performance Antecedents; OP ≡ Organisational Performance; CTP ≡ Capacity to Perform; MOT ≡ Motivation; IP ≡ Individual Performance.

Table M.3 Maximum Likelihood Parameter Estimates for the Structural Equation Model of Motivation and Performance

Regression Weights		Unstandardised Estimates	S.E.	C.R.	P	Standardised Estimates
Motivation	<-- Motivation_and_Performance_Antecedents	0.302	0.144	2.094	0.036	0.389
Organisational_Performance	<-- Motivation_and_Performance_Antecedents	0.504	0.11	4.6	0	0.552
Individual_Performance	<-- Motivation_and_Performance_Antecedents	0.241	0.086	2.822	0.005	0.294
Resources	<-- Motivation_and_Performance_Antecedents	0.89	0.132	6.737	0	0.662
Clarity of_Processes	<-- Motivation_and_Performance_Antecedents	0.978	0.117	8.34	0	0.758
Financial_Benefits	<-- Motivation_and_Performance_Antecedents	0.788	0.129	6.111	0	0.656
Relations_with Manager	<-- Motivation_and_Performance_Antecedents	1				0.666
External Perception_and Identity	<-- Motivation_and_Performance_Antecedents	0.864	0.106	8.127	0	0.734
Leadership of_Top Management	<-- Motivation_and_Performance_Antecedents	1.043	0.119	8.756	0	0.888
Work_Environment	<-- Motivation_and_Performance_Antecedents	0.819	0.115	7.145	0	0.854
B5	<-- Individual_Performance	1				0.77
B25	<-- Individual_Performance	0.501	0.079	6.324	0	0.531
B3	<-- Motivation	0.569	0.082	6.902	0	0.592
B1	<-- Motivation	1				0.697
B29	<-- Relations_with Manager	0.883	0.055	15.925	0	0.807
B34	<-- Relations_with Manager	1				0.897
B31	<-- Relations_with Manager	0.91	0.05	18.25	0	0.863
B48	<-- Relations_with Manager	0.953	0.05	18.967	0	0.879
B63	<-- Relations_with Manager	0.824	0.051	16.024	0	0.81
B91	<-- Relations_with Manager	0.75	0.052	14.4	0	0.764
B19	<-- Work_Environment	1.033	0.132	7.817	0	0.649
B42	<-- Work_Environment	1				0.614
B24	<-- Work_Environment	0.482	0.12	4.022	0	0.301
B44	<-- Work_Environment	1.247	0.151	8.251	0	0.698
B46	<-- Work_Environment	1.288	0.146	8.801	0	0.766
B53	<-- Work_Environment	1.082	0.128	8.454	0	0.722
B64	<-- Leadership of_Top Management	1.162	0.079	14.783	0	0.877
B66	<-- Leadership of_Top Management	1				0.792
B65	<-- Leadership of_Top Management	0.961	0.075	12.859	0	0.79
B68	<-- Leadership of_Top Management	1.125	0.074	15.129	0	0.892
B70	<-- Leadership of_Top Management	0.888	0.077	11.59	0	0.728
B83	<-- Leadership of_Top Management	0.566	0.074	7.635	0	0.51
B85	<-- Work_Environment	0.735	0.111	6.643	0	0.529
B101	<-- Work_Environment	0.737	0.142	5.201	0	0.399
B117	<-- External Perception_and Identity	0.926	0.062	15.047	0	0.824
B113	<-- External Perception_and Identity	1				0.863
B114	<-- External Perception_and Identity	1.058	0.062	17.105	0	0.894
B112	<-- External Perception_and Identity	0.707	0.058	12.085	0	0.714
B8	<-- Organisational_Performance	1.007	0.103	9.773	0	0.747
B7	<-- Organisational_Performance	1				0.817
B17	<-- Capacity_to Perform	1				0.539
B2	<-- Motivation	0.758	0.102	7.429	0	0.659
B9	<-- Capacity_to Perform	1.226	0.19	6.458	0	0.747
B10	<-- Capacity_to Perform	1.064	0.169	6.279	0	0.672
B12	<-- Capacity_to Perform	0.96	0.199	4.815	0	0.436
B92	<-- Resources	1.077	0.109	9.906	0	0.889
B93	<-- Resources	1				0.791
B97	<-- Clarity of_Processes	0.969	0.082	11.767	0	0.801
B99	<-- Clarity of_Processes	1				0.899
B103	<-- Financial_Benefits	1.126	0.149	7.546	0	0.817
B105	<-- Financial_Benefits	1				0.714
Individual_Performance	<-- Capacity_to Perform	0.554	0.191	2.9	0.004	0.326
Individual_Performance	<-- Motivation	0.382	0.153	2.506	0.012	0.362
Capacity_to Perform	<-- Motivation	0.324	0.073	4.457	0	0.52
Organisational_Performance	<-- Individual_Performance	0.34	0.165	2.064	0.039	0.306
Motivation	<-- Organisational_Performance	0.19	0.187	1.016	0.31	0.224

Table M .3 *(Continued)*

Variances		**Unstandardised Estimates**	**S.E.**	**C.R.**	**P**
	Motivation_and_Performance_Antecedents	1.145	0.235	4.867	0
	eip	0.27	0.108	2.501	0.012
	eop	0.358	0.089	4.011	0
	emv	0.43	0.105	4.116	0
	ectp	0.191	0.054	3.511	0
	erwm	1.435	0.19	7.574	0
	elotm	0.333	0.073	4.552	0
	eeper	0.731	0.11	6.617	0
	eres	1.159	0.203	5.703	0
	ewe	0.285	0.076	3.737	0
	ecop	0.81	0.15	5.389	0
	efb	0.94	0.205	4.59	0
	e7	0.476	0.089	5.37	0
	e8	0.768	0.107	7.2	0
	e25	0.492	0.054	9.096	0
	e5	0.531	0.113	4.691	0
	e3	0.413	0.048	8.6	0
	e1	0.73	0.101	7.212	0
	e2	0.517	0.066	7.82	0
	e10	0.368	0.049	7.481	0
	e17	0.653	0.073	8.999	0
	e12	1.051	0.109	9.607	0
	e29	1.077	0.117	9.18	0
	e34	0.629	0.082	7.704	0
	e31	0.73	0.086	8.478	0
	e48	0.691	0.085	8.171	0
	e63	0.92	0.1	9.156	0
	e91	1.038	0.109	9.488	0
	e19	1.544	0.165	9.338	0
	e42	1.739	0.183	9.517	0
	e24	2.446	0.239	10.249	0
	e44	1.725	0.191	9.012	0
	e46	1.235	0.148	8.324	0
	e53	1.132	0.129	8.806	0
	e64	0.638	0.081	7.875	0
	e66	0.937	0.103	9.139	0
	e65	0.877	0.096	9.155	0
	e68	0.51	0.069	7.446	0
	e70	1.099	0.115	9.555	0
	e83	1.437	0.142	10.134	0
	e85	1.466	0.149	9.833	0
	e101	3.027	0.299	10.121	0
	e117	0.645	0.078	8.301	0
	e113	0.544	0.073	7.451	0
	e114	0.443	0.069	6.401	0
	e112	0.763	0.081	9.387	0
	e105	1.59	0.243	6.551	0
	e103	1.04	0.259	4.017	0
	e99	0.454	0.13	3.487	0
	e97	0.997	0.15	6.65	0
	e93	1.232	0.209	5.901	0
	e92	0.635	0.209	3.045	0.002
	e9	0.319	0.053	6.037	0

Table M.4 Squared Multiple Correlations for the Structural Equation Model of Motivation and Performance

Variable	Estimate
OP	0.625
Capacity_to Perform	0.287
MV	0.376
IP	0.649
Financial_Benefits	0.431
Clarity of_Processes	0.575
Resources	0.439
External_Perception	0.539
Leadership of_Top Management	0.789
Work_Environment	0.730
Relations_with Manager	0.444
B9	0.557
B92	0.790
B93	0.626
B97	0.642
B99	0.807
B103	0.668
B105	0.509
B112	0.509
B114	0.800
B113	0.744
B117	0.678
B101	0.159
B85	0.280
B83	0.260
B70	0.531
B68	0.796
B65	0.624
B66	0.627
B64	0.769
B53	0.521
B46	0.586
B44	0.487
B24	0.091
B42	0.377
B19	0.421
B91	0.583
B63	0.656
B48	0.772
B31	0.745
B34	0.804
B29	0.651
B12	0.190
B17	0.291
B10	0.451
B2	0.434
B1	0.486
B3	0.351
B5	0.592
B25	0.282
B8	0.557
B7	0.667

Legend: OP ≡ Organisational Performance; CTP ≡ Capacity to Perform; MOT ≡ Motivation; IP ≡ Individual Performance.

Table M.5 All Implied Covariances Estimates

	MPAS	OP	CTP	MOT	IP	FB	COP	RES	EPI	LTM	WE	RWM	B9	B92
MPAS	1.145	0.765	0.159	0.491	0.552	0.902	1.12	1.018	0.989	1.193	0.938	1.145	0.195	1.097
OP	0.765	0.955	0.198	0.498	0.58	0.603	0.748	0.68	0.661	0.797	0.627	0.765	0.243	0.733
CTP	0.159	0.198	0.268	0.23	0.28	0.125	0.155	0.141	0.137	0.166	0.13	0.159	0.328	0.152
MOT	0.491	0.498	0.23	0.689	0.528	0.387	0.48	0.437	0.424	0.512	0.402	0.491	0.282	0.47
IP	0.552	0.58	0.28	0.528	0.771	0.435	0.54	0.491	0.477	0.576	0.452	0.552	0.344	0.529
FB	0.902	0.603	0.125	0.387	0.435	1.652	0.883	0.803	0.779	0.941	0.739	0.902	0.154	0.865
COP	1.12	0.748	0.155	0.48	0.54	0.883	1.906	0.996	0.967	1.167	0.918	1.12	0.191	1.073
RES	1.018	0.68	0.141	0.437	0.491	0.803	0.996	2.064	0.88	1.062	0.834	1.018	0.173	2.223
EPI	0.989	0.661	0.137	0.424	0.477	0.779	0.967	0.88	1.585	1.031	0.81	0.989	0.168	0.947
LTM	1.193	0.797	0.166	0.512	0.576	0.941	1.167	1.062	1.031	1.577	0.978	1.193	0.203	1.143
WE	0.938	0.627	0.13	0.402	0.452	0.739	0.918	0.834	0.81	0.978	1.053	0.938	0.16	0.899
RWM	1.145	0.765	0.159	0.491	0.552	0.902	1.12	1.018	0.989	1.193	0.938	2.58	0.195	1.097
B9	0.195	0.243	0.328	0.282	0.344	0.154	0.191	0.173	0.168	0.203	0.16	0.195	0.721	0.187
B92	1.097	0.733	0.152	0.47	0.529	0.865	1.073	2.223	0.947	1.143	0.899	1.097	0.187	3.03
B93	1.018	0.68	0.141	0.437	0.491	0.803	0.996	2.064	0.88	1.062	0.834	1.018	0.173	2.223
B97	1.084	0.725	0.151	0.465	0.523	0.855	1.846	0.965	0.937	1.131	0.889	1.084	0.185	1.039
B99	1.12	0.748	0.155	0.48	0.54	0.883	1.906	0.996	0.967	1.167	0.918	1.12	0.191	1.073
B103	1.016	0.679	0.141	0.436	0.49	1.859	0.994	0.904	0.877	1.059	0.832	1.016	0.173	0.973
B105	0.902	0.603	0.125	0.387	0.435	1.652	0.883	0.803	0.779	0.941	0.739	0.902	0.154	0.865
B112	0.699	0.467	0.097	0.3	0.337	0.551	0.684	0.622	1.121	0.729	0.573	0.699	0.119	0.67
B114	1.046	0.699	0.145	0.448	0.504	0.824	1.023	0.93	1.676	1.09	0.857	1.046	0.178	1.002
B113	0.989	0.661	0.137	0.424	0.477	0.779	0.967	0.88	1.585	1.031	0.81	0.989	0.168	0.947
B117	0.916	0.612	0.127	0.393	0.442	0.722	0.896	0.815	1.468	0.955	0.751	0.916	0.156	0.878
B101	0.691	0.462	0.096	0.296	0.333	0.545	0.676	0.615	0.597	0.721	0.776	0.691	0.118	0.662
B85	0.69	0.461	0.096	0.296	0.333	0.544	0.675	0.614	0.596	0.719	0.775	0.69	0.117	0.661
B83	0.675	0.451	0.094	0.29	0.326	0.532	0.661	0.601	0.583	0.892	0.553	0.675	0.115	0.647
B70	1.059	0.708	0.147	0.454	0.511	0.835	1.036	0.942	0.915	1.4	0.868	1.059	0.18	1.015
B68	1.342	0.897	0.186	0.575	0.647	1.058	1.313	1.194	1.159	1.773	1.1	1.342	0.228	1.286
B65	1.147	0.766	0.159	0.492	0.553	0.904	1.122	1.021	0.991	1.516	0.94	1.147	0.195	1.099
B66	1.193	0.797	0.166	0.512	0.576	0.941	1.167	1.062	1.031	1.577	0.978	1.193	0.203	1.143
B64	1.386	0.926	0.192	0.594	0.669	1.093	1.356	1.233	1.197	1.831	1.136	1.386	0.236	1.328
B53	1.015	0.678	0.141	0.435	0.489	0.8	0.993	0.903	0.877	1.058	1.14	1.015	0.173	0.972
B46	1.209	0.807	0.168	0.518	0.583	0.953	1.182	1.075	1.044	1.26	1.357	1.209	0.206	1.158
B44	1.17	0.782	0.162	0.502	0.564	0.922	1.145	1.041	1.011	1.22	1.314	1.17	0.199	1.121
B24	0.452	0.302	0.063	0.194	0.218	0.356	0.442	0.402	0.39	0.471	0.507	0.452	0.077	0.433
B42	0.938	0.627	0.13	0.402	0.452	0.739	0.918	0.834	0.81	0.978	1.053	0.938	0.16	0.899
B19	0.969	0.647	0.135	0.415	0.467	0.764	0.948	0.862	0.837	1.01	1.088	0.969	0.165	0.928
B91	0.859	0.574	0.119	0.368	0.414	0.677	0.84	0.764	0.742	0.895	0.704	1.935	0.146	0.823
B63	0.943	0.63	0.131	0.404	0.455	0.743	0.922	0.839	0.815	0.983	0.773	2.125	0.16	0.903
B48	1.091	0.729	0.151	0.468	0.526	0.86	1.067	0.97	0.942	1.137	0.894	2.458	0.186	1.045
B31	1.042	0.696	0.145	0.447	0.502	0.821	1.019	0.927	0.9	1.086	0.854	2.348	0.177	0.998
B34	1.145	0.765	0.159	0.491	0.552	0.902	1.12	1.018	0.989	1.193	0.938	2.58	0.195	1.097
B29	1.011	0.675	0.14	0.433	0.487	0.797	0.989	0.899	0.873	1.054	0.828	2.278	0.172	0.968
B12	0.153	0.191	0.257	0.221	0.269	0.12	0.149	0.136	0.132	0.159	0.125	0.153	0.315	0.146
B17	0.159	0.198	0.268	0.23	0.28	0.125	0.155	0.141	0.137	0.166	0.13	0.159	0.328	0.152
B10	0.169	0.211	0.285	0.245	0.298	0.133	0.165	0.15	0.146	0.176	0.139	0.169	0.349	0.162
B2	0.372	0.377	0.174	0.522	0.4	0.293	0.364	0.331	0.321	0.388	0.305	0.372	0.214	0.356
B1	0.491	0.498	0.23	0.689	0.528	0.387	0.48	0.437	0.424	0.512	0.402	0.491	0.282	0.47
B3	0.279	0.283	0.131	0.392	0.3	0.22	0.273	0.248	0.241	0.291	0.229	0.279	0.161	0.268
B5	0.552	0.58	0.28	0.528	0.771	0.435	0.54	0.491	0.477	0.576	0.452	0.552	0.344	0.529
B25	0.277	0.291	0.14	0.264	0.386	0.218	0.271	0.246	0.239	0.288	0.227	0.277	0.172	0.265
B8	0.77	0.961	0.2	0.501	0.584	0.607	0.753	0.685	0.665	0.803	0.631	0.77	0.245	0.738
B7	0.765	0.955	0.198	0.498	0.58	0.603	0.748	0.68	0.661	0.797	0.627	0.765	0.243	0.733

Legend: MPAS ≡ Motivation and Performance Antecedents; OP ≡ Organisational Performance; CTP ≡ Capacity to Perform; MOT ≡ Motivation; IP ≡ Individual Performance; FB ≡ Financial Benefits; COP ≡ Clarity of Processes; RES ≡ Resources; EPI ≡ External Perception and Identity; LTM ≡ Leadership of top Management; WE ≡ Work Environment; RWM ≡ Relations with Manager.

Table M.5 All Implied Covariances Estimates *(Continued)*

	B93	B97	B99	B103	B105	B112	B114	B113	B117	B101	B85	B83	B70	B68
MPAS	1.018	1.084	1.12	1.016	0.902	0.699	1.046	0.989	0.916	0.691	0.69	0.675	1.059	1.342
OP	0.68	0.725	0.748	0.679	0.603	0.467	0.699	0.661	0.612	0.462	0.461	0.451	0.708	0.897
CTP	0.141	0.151	0.155	0.141	0.125	0.097	0.145	0.137	0.127	0.096	0.096	0.094	0.147	0.186
MOT	0.437	0.465	0.48	0.436	0.387	0.3	0.448	0.424	0.393	0.296	0.296	0.29	0.454	0.575
IP	0.491	0.523	0.54	0.49	0.435	0.337	0.504	0.477	0.442	0.333	0.333	0.326	0.511	0.647
FB	0.803	0.855	0.883	1.859	1.652	0.551	0.824	0.779	0.722	0.545	0.544	0.532	0.835	1.058
COP	0.996	1.846	1.906	0.994	0.883	0.684	1.023	0.967	0.896	0.676	0.675	0.661	1.036	1.313
RES	2.064	0.965	0.996	0.904	0.803	0.622	0.93	0.88	0.815	0.615	0.614	0.601	0.942	1.194
EPI	0.88	0.937	0.967	0.877	0.779	1.121	1.676	1.585	1.468	0.597	0.596	0.583	0.915	1.159
LTM	1.062	1.131	1.167	1.059	0.941	0.729	1.09	1.031	0.955	0.721	0.719	0.892	1.4	1.773
WE	0.834	0.889	0.918	0.832	0.739	0.573	0.857	0.81	0.751	0.776	0.775	0.553	0.868	1.1
RWM	1.018	1.084	1.12	1.016	0.902	0.699	1.046	0.989	0.916	0.691	0.69	0.675	1.059	1.342
B9	0.173	0.185	0.191	0.173	0.154	0.119	0.178	0.168	0.156	0.118	0.117	0.115	0.18	0.228
B92	2.223	1.039	1.073	0.973	0.865	0.67	1.002	0.947	0.878	0.662	0.661	0.647	1.015	1.286
B93	3.297	0.965	0.996	0.904	0.803	0.622	0.93	0.88	0.815	0.615	0.614	0.601	0.942	1.194
B97	0.965	2.784	1.846	0.962	0.855	0.662	0.991	0.937	0.868	0.655	0.653	0.64	1.004	1.271
B99	0.996	1.846	2.36	0.994	0.883	0.684	1.023	0.967	0.896	0.676	0.675	0.661	1.036	1.313
B103	0.904	0.962	0.994	3.133	1.859	0.62	0.928	0.877	0.813	0.613	0.612	0.599	0.94	1.191
B105	0.803	0.855	0.883	1.859	3.242	0.551	0.824	0.779	0.722	0.545	0.544	0.532	0.835	1.058
B112	0.622	0.662	0.684	0.62	0.551	1.555	1.185	1.121	1.038	0.422	0.421	0.412	0.647	0.82
B114	0.93	0.991	1.023	0.928	0.824	1.185	2.216	1.676	1.553	0.632	0.63	0.617	0.968	1.226
B113	0.88	0.937	0.967	0.877	0.779	1.121	1.676	2.129	1.468	0.597	0.596	0.583	0.915	1.159
B117	0.815	0.868	0.896	0.813	0.722	1.038	1.553	1.468	2.005	0.553	0.552	0.54	0.848	1.074
B101	0.615	0.655	0.676	0.613	0.545	0.422	0.632	0.597	0.553	3.599	0.571	0.408	0.64	0.81
B85	0.614	0.653	0.675	0.612	0.544	0.421	0.63	0.596	0.552	0.571	2.035	0.407	0.638	0.809
B83	0.601	0.64	0.661	0.599	0.532	0.412	0.617	0.583	0.54	0.408	0.407	1.942	0.792	1.003
B70	0.942	1.004	1.036	0.94	0.835	0.647	0.968	0.915	0.848	0.64	0.638	0.792	2.342	1.574
B68	1.194	1.271	1.313	1.191	1.058	0.82	1.226	1.159	1.074	0.81	0.809	1.003	1.574	2.504
B65	1.021	1.087	1.122	1.018	0.904	0.701	1.048	0.991	0.918	0.693	0.691	0.858	1.346	1.705
B66	1.062	1.131	1.167	1.059	0.941	0.729	1.09	1.031	0.955	0.721	0.719	0.892	1.4	1.773
B64	1.233	1.313	1.356	1.23	1.093	0.846	1.266	1.197	1.109	0.837	0.835	1.036	1.626	2.059
B53	0.903	0.961	0.993	0.9	0.8	0.62	0.927	0.877	0.812	0.84	0.838	0.599	0.939	1.19
B46	1.075	1.145	1.182	1.072	0.953	0.738	1.104	1.044	0.967	1	0.998	0.713	1.119	1.417
B44	1.041	1.109	1.145	1.038	0.922	0.715	1.069	1.011	0.936	0.968	0.966	0.69	1.083	1.372
B24	0.402	0.428	0.442	0.401	0.356	0.276	0.413	0.39	0.362	0.374	0.373	0.267	0.418	0.53
B42	0.834	0.889	0.918	0.832	0.739	0.573	0.857	0.81	0.751	0.776	0.775	0.553	0.868	1.1
B19	0.862	0.918	0.948	0.86	0.764	0.592	0.885	0.837	0.775	0.802	0.8	0.572	0.897	1.136
B91	0.764	0.813	0.84	0.762	0.677	0.524	0.784	0.742	0.687	0.518	0.517	0.507	0.795	1.007
B63	0.839	0.893	0.922	0.837	0.743	0.576	0.861	0.815	0.754	0.569	0.568	0.556	0.873	1.105
B48	0.97	1.033	1.067	0.968	0.86	0.666	0.996	0.942	0.873	0.659	0.657	0.643	1.009	1.279
B31	0.927	0.987	1.019	0.924	0.821	0.636	0.952	0.9	0.833	0.629	0.628	0.615	0.964	1.221
B34	1.018	1.084	1.12	1.016	0.902	0.699	1.046	0.989	0.916	0.691	0.69	0.675	1.059	1.342
B29	0.899	0.957	0.989	0.897	0.797	0.617	0.923	0.873	0.809	0.61	0.609	0.596	0.935	1.185
B12	0.136	0.145	0.149	0.135	0.12	0.093	0.139	0.132	0.122	0.092	0.092	0.09	0.141	0.179
B17	0.141	0.151	0.155	0.141	0.125	0.097	0.145	0.137	0.127	0.096	0.096	0.094	0.147	0.186
B10	0.15	0.16	0.165	0.15	0.133	0.103	0.154	0.146	0.135	0.102	0.102	0.1	0.156	0.198
B2	0.331	0.352	0.364	0.33	0.293	0.227	0.34	0.321	0.298	0.225	0.224	0.219	0.344	0.436
B1	0.437	0.465	0.48	0.436	0.387	0.3	0.448	0.424	0.393	0.296	0.296	0.29	0.454	0.575
B3	0.248	0.265	0.273	0.248	0.22	0.171	0.255	0.241	0.223	0.169	0.168	0.165	0.258	0.327
B5	0.491	0.523	0.54	0.49	0.435	0.337	0.504	0.477	0.442	0.333	0.333	0.326	0.511	0.647
B25	0.246	0.262	0.271	0.245	0.218	0.169	0.253	0.239	0.221	0.167	0.167	0.163	0.256	0.324
B8	0.685	0.729	0.753	0.683	0.607	0.47	0.703	0.665	0.616	0.465	0.464	0.454	0.713	0.903
B7	0.68	0.725	0.748	0.679	0.603	0.467	0.699	0.661	0.612	0.462	0.461	0.451	0.708	0.897

Table M.5 All Implied Covariances Estimates *(Continued)*

	B65	B66	B64	B53	B46	B44	B24	B42	B19	B91	B63	B48	B31	B34
MPAS	1.147	1.193	1.386	1.015	1.209	1.17	0.452	0.938	0.969	0.859	0.943	1.091	1.042	1.145
OP	0.766	0.797	0.926	0.678	0.807	0.782	0.302	0.627	0.647	0.574	0.63	0.729	0.696	0.765
CTP	0.159	0.166	0.192	0.141	0.168	0.162	0.063	0.13	0.135	0.119	0.131	0.151	0.145	0.159
MOT	0.492	0.512	0.594	0.435	0.518	0.502	0.194	0.402	0.415	0.368	0.404	0.468	0.447	0.491
IP	0.553	0.576	0.669	0.489	0.583	0.564	0.218	0.452	0.467	0.414	0.455	0.526	0.502	0.552
FB	0.904	0.941	1.093	0.8	0.953	0.922	0.356	0.739	0.764	0.677	0.743	0.86	0.821	0.902
COP	1.122	1.167	1.356	0.993	1.182	1.145	0.442	0.918	0.948	0.84	0.922	1.067	1.019	1.12
RES	1.021	1.062	1.233	0.903	1.075	1.041	0.402	0.834	0.862	0.764	0.839	0.97	0.927	1.018
EPI	0.991	1.031	1.197	0.877	1.044	1.011	0.39	0.81	0.837	0.742	0.815	0.942	0.9	0.989
LTM	1.516	1.577	1.831	1.058	1.26	1.22	0.471	0.978	1.01	0.895	0.983	1.137	1.086	1.193
WE	0.94	0.978	1.136	1.14	1.357	1.314	0.507	1.053	1.088	0.704	0.773	0.894	0.854	0.938
RWM	1.147	1.193	1.386	1.015	1.209	1.17	0.452	0.938	0.969	1.935	2.125	2.458	2.348	2.58
B9	0.195	0.203	0.236	0.173	0.206	0.199	0.077	0.16	0.165	0.146	0.16	0.186	0.177	0.195
B92	1.099	1.143	1.328	0.972	1.158	1.121	0.433	0.899	0.928	0.823	0.903	1.045	0.998	1.097
B93	1.021	1.062	1.233	0.903	1.075	1.041	0.402	0.834	0.862	0.764	0.839	0.97	0.927	1.018
B97	1.087	1.131	1.313	0.961	1.145	1.109	0.428	0.889	0.918	0.813	0.893	1.033	0.987	1.084
B99	1.122	1.167	1.356	0.993	1.182	1.145	0.442	0.918	0.948	0.84	0.922	1.067	1.019	1.12
B103	1.018	1.059	1.23	0.9	1.072	1.038	0.401	0.832	0.86	0.762	0.837	0.968	0.924	1.016
B105	0.904	0.941	1.093	0.8	0.953	0.922	0.356	0.739	0.764	0.677	0.743	0.86	0.821	0.902
B112	0.701	0.729	0.846	0.62	0.738	0.715	0.276	0.573	0.592	0.524	0.576	0.666	0.636	0.699
B114	1.048	1.09	1.266	0.927	1.104	1.069	0.413	0.857	0.885	0.784	0.861	0.996	0.952	1.046
B113	0.991	1.031	1.197	0.877	1.044	1.011	0.39	0.81	0.837	0.742	0.815	0.942	0.9	0.989
B117	0.918	0.955	1.109	0.812	0.967	0.936	0.362	0.751	0.775	0.687	0.754	0.873	0.833	0.916
B101	0.693	0.721	0.837	0.84	1	0.968	0.374	0.776	0.802	0.518	0.569	0.659	0.629	0.691
B85	0.691	0.719	0.835	0.838	0.998	0.966	0.373	0.775	0.8	0.517	0.568	0.657	0.628	0.69
B83	0.858	0.892	1.036	0.599	0.713	0.69	0.267	0.553	0.572	0.507	0.556	0.643	0.615	0.675
B70	1.346	1.4	1.626	0.939	1.119	1.083	0.418	0.868	0.897	0.795	0.873	1.009	0.964	1.059
B68	1.705	1.773	2.059	1.19	1.417	1.372	0.53	1.1	1.136	1.007	1.105	1.279	1.221	1.342
B65	2.334	1.516	1.761	1.017	1.211	1.173	0.453	0.94	0.971	0.861	0.945	1.093	1.044	1.147
B66	1.516	2.514	1.831	1.058	1.26	1.22	0.471	0.978	1.01	0.895	0.983	1.137	1.086	1.193
B64	1.761	1.831	2.765	1.229	1.464	1.417	0.547	1.136	1.173	1.04	1.142	1.321	1.261	1.386
B53	1.017	1.058	1.229	2.364	1.468	1.422	0.549	1.14	1.177	0.761	0.836	0.967	0.923	1.015
B46	1.211	1.26	1.464	1.468	2.984	1.693	0.654	1.357	1.402	0.907	0.995	1.152	1.1	1.209
B44	1.173	1.22	1.417	1.422	1.693	3.364	0.633	1.314	1.357	0.878	0.964	1.115	1.065	1.17
B24	0.453	0.471	0.547	0.549	0.654	0.633	2.691	0.507	0.524	0.339	0.372	0.43	0.411	0.452
B42	0.94	0.978	1.136	1.14	1.357	1.314	0.507	2.792	1.088	0.704	0.773	0.894	0.854	0.938
B19	0.971	1.01	1.173	1.177	1.402	1.357	0.524	1.088	2.668	0.727	0.798	0.923	0.882	0.969
B91	0.861	0.895	1.04	0.761	0.907	0.878	0.339	0.704	0.727	2.489	1.594	1.844	1.761	1.935
B63	0.945	0.983	1.142	0.836	0.995	0.964	0.372	0.773	0.798	1.594	2.67	2.025	1.934	2.125
B48	1.093	1.137	1.321	0.967	1.152	1.115	0.43	0.894	0.923	1.844	2.025	3.033	2.237	2.458
B31	1.044	1.086	1.261	0.923	1.1	1.065	0.411	0.854	0.882	1.761	1.934	2.237	2.866	2.348
B34	1.147	1.193	1.386	1.015	1.209	1.17	0.452	0.938	0.969	1.935	2.125	2.458	2.348	3.209
B29	1.013	1.054	1.224	0.896	1.067	1.033	0.399	0.828	0.855	1.708	1.876	2.17	2.073	2.278
B12	0.153	0.159	0.185	0.135	0.161	0.156	0.06	0.125	0.129	0.114	0.126	0.145	0.139	0.153
B17	0.159	0.166	0.192	0.141	0.168	0.162	0.063	0.13	0.135	0.119	0.131	0.151	0.145	0.159
B10	0.169	0.176	0.205	0.15	0.179	0.173	0.067	0.139	0.143	0.127	0.139	0.161	0.154	0.169
B2	0.373	0.388	0.45	0.33	0.393	0.38	0.147	0.305	0.315	0.279	0.306	0.354	0.338	0.372
B1	0.492	0.512	0.594	0.435	0.518	0.502	0.194	0.402	0.415	0.368	0.404	0.468	0.447	0.491
B3	0.28	0.291	0.338	0.248	0.295	0.285	0.11	0.229	0.236	0.209	0.23	0.266	0.254	0.279
B5	0.553	0.576	0.669	0.489	0.583	0.564	0.218	0.452	0.467	0.414	0.455	0.526	0.502	0.552
B25	0.277	0.288	0.335	0.245	0.292	0.283	0.109	0.227	0.234	0.207	0.228	0.263	0.252	0.277
B8	0.772	0.803	0.932	0.683	0.813	0.787	0.304	0.631	0.652	0.578	0.634	0.734	0.701	0.77
B7	0.766	0.797	0.926	0.678	0.807	0.782	0.302	0.627	0.647	0.574	0.63	0.729	0.696	0.765

Table M.5 All Implied Covariances Estimates *(Continued)*

	B29	B12	B17	B10	B2	B1	B3	B5	B25	B8	B7
MPAS	1.011	0.153	0.159	0.169	0.372	0.491	0.279	0.552	0.277	0.77	0.765
OP	0.675	0.191	0.198	0.211	0.377	0.498	0.283	0.58	0.291	0.961	0.955
CTP	0.14	0.257	0.268	0.285	0.174	0.23	0.131	0.28	0.14	0.2	0.198
MOT	0.433	0.221	0.23	0.245	0.522	0.689	0.392	0.528	0.264	0.501	0.498
IP	0.487	0.269	0.28	0.298	0.4	0.528	0.3	0.771	0.386	0.584	0.58
FB	0.797	0.12	0.125	0.133	0.293	0.387	0.22	0.435	0.218	0.607	0.603
COP	0.989	0.149	0.155	0.165	0.364	0.48	0.273	0.54	0.271	0.753	0.748
RES	0.899	0.136	0.141	0.15	0.331	0.437	0.248	0.491	0.246	0.685	0.68
EPI	0.873	0.132	0.137	0.146	0.321	0.424	0.241	0.477	0.239	0.665	0.661
LTM	1.054	0.159	0.166	0.176	0.388	0.512	0.291	0.576	0.288	0.803	0.797
WE	0.828	0.125	0.13	0.139	0.305	0.402	0.229	0.452	0.227	0.631	0.627
RWM	2.278	0.153	0.159	0.169	0.372	0.491	0.279	0.552	0.277	0.77	0.765
B9	0.172	0.315	0.328	0.349	0.214	0.282	0.161	0.344	0.172	0.245	0.243
B92	0.968	0.146	0.152	0.162	0.356	0.47	0.268	0.529	0.265	0.738	0.733
B93	0.899	0.136	0.141	0.15	0.331	0.437	0.248	0.491	0.246	0.685	0.68
B97	0.957	0.145	0.151	0.16	0.352	0.465	0.265	0.523	0.262	0.729	0.725
B99	0.989	0.149	0.155	0.165	0.364	0.48	0.273	0.54	0.271	0.753	0.748
B103	0.897	0.135	0.141	0.15	0.33	0.436	0.248	0.49	0.245	0.683	0.679
B105	0.797	0.12	0.125	0.133	0.293	0.387	0.22	0.435	0.218	0.607	0.603
B112	0.617	0.093	0.097	0.103	0.227	0.3	0.171	0.337	0.169	0.47	0.467
B114	0.923	0.139	0.145	0.154	0.34	0.448	0.255	0.504	0.253	0.703	0.699
B113	0.873	0.132	0.137	0.146	0.321	0.424	0.241	0.477	0.239	0.665	0.661
B117	0.809	0.122	0.127	0.135	0.298	0.393	0.223	0.442	0.221	0.616	0.612
B101	0.61	0.092	0.096	0.102	0.225	0.296	0.169	0.333	0.167	0.465	0.462
B85	0.609	0.092	0.096	0.102	0.224	0.296	0.168	0.333	0.167	0.464	0.461
B83	0.596	0.09	0.094	0.1	0.219	0.29	0.165	0.326	0.163	0.454	0.451
B70	0.935	0.141	0.147	0.156	0.344	0.454	0.258	0.511	0.256	0.713	0.708
B68	1.185	0.179	0.186	0.198	0.436	0.575	0.327	0.647	0.324	0.903	0.897
B65	1.013	0.153	0.159	0.169	0.373	0.492	0.28	0.553	0.277	0.772	0.766
B66	1.054	0.159	0.166	0.176	0.388	0.512	0.291	0.576	0.288	0.803	0.797
B64	1.224	0.185	0.192	0.205	0.45	0.594	0.338	0.669	0.335	0.932	0.926
B53	0.896	0.135	0.141	0.15	0.33	0.435	0.248	0.489	0.245	0.683	0.678
B46	1.067	0.161	0.168	0.179	0.393	0.518	0.295	0.583	0.292	0.813	0.807
B44	1.033	0.156	0.162	0.173	0.38	0.502	0.285	0.564	0.283	0.787	0.782
B24	0.399	0.06	0.063	0.067	0.147	0.194	0.11	0.218	0.109	0.304	0.302
B42	0.828	0.125	0.13	0.139	0.305	0.402	0.229	0.452	0.227	0.631	0.627
B19	0.855	0.129	0.135	0.143	0.315	0.415	0.236	0.467	0.234	0.652	0.647
B91	1.708	0.114	0.119	0.127	0.279	0.368	0.209	0.414	0.207	0.578	0.574
B63	1.876	0.126	0.131	0.139	0.306	0.404	0.23	0.455	0.228	0.634	0.63
B48	2.17	0.145	0.151	0.161	0.354	0.468	0.266	0.526	0.263	0.734	0.729
B31	2.073	0.139	0.145	0.154	0.338	0.447	0.254	0.502	0.252	0.701	0.696
B34	2.278	0.153	0.159	0.169	0.372	0.491	0.279	0.552	0.277	0.77	0.765
B29	3.087	0.135	0.14	0.149	0.328	0.433	0.247	0.487	0.244	0.68	0.675
B12	0.135	1.297	0.257	0.273	0.168	0.221	0.126	0.269	0.135	0.192	0.191
B17	0.14	0.257	0.92	0.285	0.174	0.23	0.131	0.28	0.14	0.2	0.198
B10	0.149	0.273	0.285	0.671	0.186	0.245	0.139	0.298	0.149	0.213	0.211
B2	0.328	0.168	0.174	0.186	0.912	0.522	0.297	0.4	0.2	0.38	0.377
B1	0.433	0.221	0.23	0.245	0.522	1.419	0.392	0.528	0.264	0.501	0.498
B3	0.247	0.126	0.131	0.139	0.297	0.392	0.636	0.3	0.15	0.285	0.283
B5	0.487	0.269	0.28	0.298	0.4	0.528	0.3	1.301	0.386	0.584	0.58
B25	0.244	0.135	0.14	0.149	0.2	0.264	0.15	0.386	0.686	0.293	0.291
B8	0.68	0.192	0.2	0.213	0.38	0.501	0.285	0.584	0.293	1.736	0.961
B7	0.675	0.191	0.198	0.211	0.377	0.498	0.283	0.58	0.291	0.961	1.431

Table M.6 All Implied Correlations Estimates

	MPAS	OP	CTP	MOT	IP	FB	COP	RES	EPI	LTM	WE	RWM	B9	B92
MPAS	1	0.732	0.287	0.553	0.588	0.656	0.758	0.662	0.734	0.888	0.854	0.666	0.214	0.589
OP	0.732	1	0.393	0.614	0.676	0.48	0.555	0.485	0.537	0.65	0.625	0.487	0.293	0.431
CTP	0.287	0.393	1	0.536	0.618	0.188	0.218	0.19	0.211	0.255	0.245	0.191	0.747	0.169
MOT	0.553	0.614	0.536	1	0.724	0.363	0.419	0.366	0.406	0.491	0.472	0.368	0.4	0.325
IP	0.588	0.676	0.618	0.724	1	0.386	0.446	0.389	0.431	0.522	0.502	0.391	0.461	0.346
FB	0.656	0.48	0.188	0.363	0.386	1	0.498	0.435	0.482	0.583	0.561	0.437	0.141	0.386
COP	0.758	0.555	0.218	0.419	0.446	0.498	1	0.502	0.557	0.673	0.648	0.505	0.163	0.447
RES	0.662	0.485	0.19	0.366	0.389	0.435	0.502	1	0.486	0.588	0.566	0.441	0.142	0.889
EPI	0.734	0.537	0.211	0.406	0.431	0.482	0.557	0.486	1	0.652	0.627	0.489	0.157	0.432
LTM	0.888	0.65	0.255	0.491	0.522	0.583	0.673	0.588	0.652	1	0.759	0.592	0.19	0.523
WE	0.854	0.625	0.245	0.472	0.502	0.561	0.648	0.566	0.627	0.759	1	0.569	0.183	0.503
RWM	0.666	0.487	0.191	0.368	0.391	0.437	0.505	0.441	0.489	0.592	0.569	1	0.143	0.392
B9	0.214	0.293	0.747	0.4	0.461	0.141	0.163	0.142	0.157	0.19	0.183	0.143	1	0.126
B92	0.589	0.431	0.169	0.325	0.346	0.386	0.447	0.889	0.432	0.523	0.503	0.392	0.126	1
B93	0.524	0.383	0.151	0.29	0.308	0.344	0.397	0.791	0.385	0.466	0.448	0.349	0.112	0.704
B97	0.607	0.444	0.174	0.336	0.357	0.399	0.801	0.402	0.446	0.54	0.519	0.405	0.13	0.358
B99	0.681	0.498	0.196	0.376	0.4	0.447	0.899	0.451	0.5	0.605	0.582	0.454	0.146	0.401
B103	0.536	0.392	0.154	0.296	0.315	0.817	0.407	0.355	0.394	0.476	0.458	0.357	0.115	0.316
B105	0.468	0.343	0.135	0.259	0.275	0.714	0.355	0.31	0.344	0.416	0.4	0.312	0.1	0.276
B112	0.524	0.383	0.15	0.29	0.308	0.344	0.397	0.347	0.714	0.465	0.448	0.349	0.112	0.309
B114	0.657	0.48	0.189	0.363	0.386	0.431	0.498	0.435	0.894	0.583	0.561	0.437	0.141	0.387
B113	0.633	0.463	0.182	0.35	0.372	0.416	0.48	0.42	0.863	0.563	0.541	0.422	0.136	0.373
B117	0.605	0.442	0.174	0.334	0.355	0.397	0.458	0.401	0.824	0.537	0.516	0.403	0.13	0.356
B101	0.341	0.249	0.098	0.188	0.2	0.223	0.258	0.226	0.25	0.303	0.399	0.227	0.073	0.201
B85	0.452	0.331	0.13	0.25	0.266	0.297	0.343	0.299	0.332	0.401	0.529	0.301	0.097	0.266
B83	0.453	0.331	0.13	0.25	0.266	0.297	0.343	0.3	0.333	0.51	0.387	0.302	0.097	0.267
B70	0.647	0.473	0.186	0.358	0.38	0.425	0.491	0.429	0.475	0.728	0.553	0.431	0.139	0.381
B68	0.793	0.58	0.228	0.438	0.466	0.52	0.601	0.525	0.582	0.892	0.677	0.528	0.17	0.467
B65	0.702	0.513	0.202	0.388	0.413	0.461	0.532	0.465	0.515	0.79	0.6	0.468	0.15	0.413
B66	0.703	0.515	0.202	0.389	0.413	0.462	0.533	0.466	0.516	0.792	0.601	0.469	0.151	0.414
B64	0.779	0.57	0.224	0.431	0.458	0.511	0.591	0.516	0.572	0.877	0.666	0.519	0.167	0.459
B53	0.617	0.451	0.177	0.341	0.363	0.405	0.468	0.409	0.453	0.548	0.722	0.411	0.132	0.363
B46	0.654	0.478	0.188	0.361	0.384	0.429	0.496	0.433	0.48	0.581	0.766	0.436	0.14	0.385
B44	0.596	0.436	0.171	0.33	0.35	0.391	0.452	0.395	0.438	0.53	0.698	0.397	0.128	0.351
B24	0.257	0.188	0.074	0.142	0.151	0.169	0.195	0.171	0.189	0.229	0.301	0.171	0.055	0.152
B42	0.525	0.384	0.151	0.29	0.308	0.344	0.398	0.348	0.385	0.466	0.614	0.349	0.112	0.309
B19	0.554	0.406	0.159	0.306	0.326	0.364	0.42	0.367	0.407	0.493	0.649	0.369	0.119	0.327
B91	0.509	0.372	0.146	0.281	0.299	0.334	0.386	0.337	0.373	0.452	0.434	0.764	0.109	0.3
B63	0.539	0.395	0.155	0.298	0.317	0.354	0.409	0.357	0.396	0.479	0.461	0.81	0.116	0.318
B48	0.585	0.428	0.168	0.323	0.344	0.384	0.444	0.388	0.43	0.52	0.5	0.879	0.125	0.345
B31	0.575	0.421	0.165	0.318	0.338	0.377	0.436	0.381	0.422	0.511	0.491	0.863	0.123	0.339
B34	0.597	0.437	0.172	0.33	0.351	0.392	0.453	0.396	0.438	0.53	0.51	0.897	0.128	0.352
B29	0.538	0.393	0.154	0.297	0.316	0.353	0.408	0.356	0.395	0.478	0.459	0.807	0.115	0.317
B12	0.125	0.171	0.436	0.234	0.269	0.082	0.095	0.083	0.092	0.111	0.107	0.083	0.326	0.074
B17	0.155	0.212	0.539	0.289	0.333	0.102	0.117	0.103	0.114	0.138	0.132	0.103	0.403	0.091
B10	0.193	0.264	0.672	0.36	0.415	0.127	0.146	0.128	0.142	0.171	0.165	0.128	0.501	0.114
B2	0.364	0.404	0.353	0.659	0.477	0.239	0.276	0.241	0.267	0.323	0.311	0.242	0.264	0.214
B1	0.385	0.428	0.374	0.697	0.505	0.253	0.292	0.255	0.283	0.342	0.329	0.257	0.279	0.227
B3	0.327	0.363	0.318	0.592	0.429	0.215	0.248	0.217	0.24	0.291	0.28	0.218	0.237	0.193
B5	0.452	0.52	0.475	0.557	0.77	0.297	0.343	0.3	0.332	0.402	0.386	0.301	0.355	0.266
B25	0.312	0.359	0.328	0.385	0.531	0.205	0.237	0.207	0.229	0.277	0.267	0.208	0.245	0.184
B8	0.546	0.747	0.293	0.458	0.505	0.358	0.414	0.362	0.401	0.485	0.467	0.364	0.219	0.322
B7	0.598	0.817	0.321	0.501	0.552	0.392	0.453	0.396	0.439	0.531	0.51	0.398	0.239	0.352

Legend: MPAS ≡ Motivation and Performance Antecedents; OP ≡ Organisational Performance; CTP ≡ Capacity to Perform; MOT ≡ Motivation; IP ≡ Individual Performance; FB ≡ Financial Benefits; COP ≡ Clarity of Processes; RES ≡ Resources; EPI ≡ External Perception and Identity; LTM ≡ Leadership of top Management; WE ≡ Work Environment; RWM ≡ Relations with Manager.

Table M.6 All Implied Correlations Estimates *(Continued)*

	B93	B97	B99	B103	B105	B112	B114	B113	B117	B101	B85	B83	B70	B68
MPAS	0.524	0.607	0.681	0.536	0.468	0.524	0.657	0.633	0.605	0.341	0.452	0.453	0.647	0.793
OP	0.383	0.444	0.498	0.392	0.343	0.383	0.48	0.463	0.442	0.249	0.331	0.331	0.473	0.58
CTP	0.151	0.174	0.196	0.154	0.135	0.15	0.189	0.182	0.174	0.098	0.13	0.13	0.186	0.228
MOT	0.29	0.336	0.376	0.296	0.259	0.29	0.363	0.35	0.334	0.188	0.25	0.25	0.358	0.438
IP	0.308	0.357	0.4	0.315	0.275	0.308	0.386	0.372	0.355	0.2	0.266	0.266	0.38	0.466
FB	0.344	0.399	0.447	0.817	0.714	0.344	0.431	0.416	0.397	0.223	0.297	0.297	0.425	0.52
COP	0.397	0.801	0.899	0.407	0.355	0.397	0.498	0.48	0.458	0.258	0.343	0.343	0.491	0.601
RES	0.791	0.402	0.451	0.355	0.31	0.347	0.435	0.42	0.401	0.226	0.299	0.3	0.429	0.525
EPI	0.385	0.446	0.5	0.394	0.344	0.714	0.894	0.863	0.824	0.25	0.332	0.333	0.475	0.582
LTM	0.466	0.54	0.605	0.476	0.416	0.465	0.583	0.563	0.537	0.303	0.401	0.51	0.728	0.892
WE	0.448	0.519	0.582	0.458	0.4	0.448	0.561	0.541	0.516	0.399	0.529	0.387	0.553	0.677
RWM	0.349	0.405	0.454	0.357	0.312	0.349	0.437	0.422	0.403	0.227	0.301	0.302	0.431	0.528
B9	0.112	0.13	0.146	0.115	0.1	0.112	0.141	0.136	0.13	0.073	0.097	0.097	0.139	0.17
B92	0.704	0.358	0.401	0.316	0.276	0.309	0.387	0.373	0.356	0.201	0.266	0.267	0.381	0.467
B93	1	0.318	0.357	0.281	0.246	0.275	0.344	0.332	0.317	0.179	0.237	0.237	0.339	0.416
B97	0.318	1	0.72	0.326	0.285	0.318	0.399	0.385	0.367	0.207	0.274	0.275	0.393	0.482
B99	0.357	0.72	1	0.365	0.319	0.357	0.447	0.432	0.412	0.232	0.308	0.309	0.441	0.54
B103	0.281	0.326	0.365	1	0.583	0.281	0.352	0.34	0.324	0.183	0.242	0.243	0.347	0.425
B105	0.246	0.285	0.319	0.583	1	0.245	0.308	0.297	0.283	0.16	0.212	0.212	0.303	0.371
B112	0.275	0.318	0.357	0.281	0.245	1	0.638	0.616	0.588	0.178	0.237	0.237	0.339	0.415
B114	0.344	0.399	0.447	0.352	0.308	0.638	1	0.772	0.737	0.224	0.297	0.297	0.425	0.52
B113	0.332	0.385	0.432	0.34	0.297	0.616	0.772	1	0.711	0.216	0.286	0.287	0.41	0.502
B117	0.317	0.367	0.412	0.324	0.283	0.588	0.737	0.711	1	0.206	0.273	0.274	0.391	0.479
B101	0.179	0.207	0.232	0.183	0.16	0.178	0.224	0.216	0.206	1	0.211	0.154	0.22	0.27
B85	0.237	0.274	0.308	0.242	0.212	0.237	0.297	0.286	0.273	0.211	1	0.205	0.292	0.358
B83	0.237	0.275	0.309	0.243	0.212	0.237	0.297	0.287	0.274	0.154	0.205	1	0.371	0.455
B70	0.339	0.393	0.441	0.347	0.303	0.339	0.425	0.41	0.391	0.22	0.292	0.371	1	0.65
B68	0.416	0.482	0.54	0.425	0.371	0.415	0.52	0.502	0.479	0.27	0.358	0.455	0.65	1
B65	0.368	0.426	0.478	0.376	0.329	0.368	0.461	0.445	0.424	0.239	0.317	0.403	0.576	0.705
B66	0.369	0.427	0.479	0.377	0.33	0.369	0.462	0.446	0.425	0.24	0.318	0.404	0.577	0.707
B64	0.408	0.473	0.531	0.418	0.365	0.408	0.512	0.494	0.471	0.265	0.352	0.447	0.639	0.783
B53	0.323	0.375	0.42	0.331	0.289	0.323	0.405	0.391	0.373	0.288	0.382	0.279	0.399	0.489
B46	0.343	0.397	0.445	0.351	0.306	0.343	0.429	0.414	0.395	0.305	0.405	0.296	0.423	0.518
B44	0.313	0.362	0.406	0.32	0.279	0.312	0.392	0.378	0.361	0.278	0.369	0.27	0.386	0.473
B24	0.135	0.156	0.175	0.138	0.121	0.135	0.169	0.163	0.156	0.12	0.159	0.117	0.167	0.204
B42	0.275	0.319	0.357	0.281	0.246	0.275	0.345	0.332	0.317	0.245	0.325	0.238	0.34	0.416
B19	0.291	0.337	0.378	0.297	0.26	0.291	0.364	0.351	0.335	0.259	0.343	0.251	0.359	0.439
B91	0.267	0.309	0.346	0.273	0.238	0.267	0.334	0.322	0.307	0.173	0.23	0.23	0.329	0.403
B63	0.283	0.328	0.367	0.289	0.253	0.283	0.354	0.342	0.326	0.184	0.244	0.244	0.349	0.427
B48	0.307	0.356	0.399	0.314	0.274	0.307	0.384	0.371	0.354	0.199	0.264	0.265	0.379	0.464
B31	0.301	0.349	0.392	0.308	0.269	0.301	0.378	0.364	0.348	0.196	0.26	0.261	0.372	0.456
B34	0.313	0.363	0.407	0.32	0.28	0.313	0.392	0.378	0.361	0.203	0.27	0.271	0.386	0.473
B29	0.282	0.327	0.366	0.288	0.252	0.282	0.353	0.34	0.325	0.183	0.243	0.244	0.348	0.426
B12	0.066	0.076	0.085	0.067	0.059	0.066	0.082	0.079	0.076	0.043	0.057	0.057	0.081	0.099
B17	0.081	0.094	0.105	0.083	0.073	0.081	0.102	0.098	0.094	0.053	0.07	0.07	0.1	0.123
B10	0.101	0.117	0.131	0.103	0.09	0.101	0.127	0.122	0.117	0.066	0.087	0.087	0.125	0.153
B2	0.191	0.221	0.248	0.195	0.17	0.191	0.239	0.231	0.22	0.124	0.164	0.165	0.236	0.288
B1	0.202	0.234	0.262	0.207	0.18	0.202	0.253	0.244	0.233	0.131	0.174	0.174	0.249	0.305
B3	0.172	0.199	0.223	0.176	0.153	0.172	0.215	0.207	0.198	0.111	0.148	0.148	0.212	0.259
B5	0.237	0.275	0.308	0.243	0.212	0.237	0.297	0.286	0.273	0.154	0.204	0.205	0.293	0.359
B25	0.164	0.19	0.213	0.167	0.146	0.164	0.205	0.198	0.189	0.106	0.141	0.141	0.202	0.247
B8	0.286	0.332	0.372	0.293	0.256	0.286	0.359	0.346	0.33	0.186	0.247	0.247	0.353	0.433
B7	0.313	0.363	0.407	0.32	0.28	0.313	0.392	0.379	0.361	0.204	0.27	0.271	0.387	0.474

Table M.6 All Implied Correlations Estimates *(Continued)*

	B65	B66	B64	B53	B46	B44	B24	B42	B19	B91	B63	B48	B31	B34
MPAS	0.702	0.703	0.779	0.617	0.654	0.596	0.257	0.525	0.554	0.509	0.539	0.585	0.575	0.597
OP	0.513	0.515	0.57	0.451	0.478	0.436	0.188	0.384	0.406	0.372	0.395	0.428	0.421	0.437
CTP	0.202	0.202	0.224	0.177	0.188	0.171	0.074	0.151	0.159	0.146	0.155	0.168	0.165	0.172
MOT	0.388	0.389	0.431	0.341	0.361	0.33	0.142	0.29	0.306	0.281	0.298	0.323	0.318	0.33
IP	0.413	0.413	0.458	0.363	0.384	0.35	0.151	0.308	0.326	0.299	0.317	0.344	0.338	0.351
FB	0.461	0.462	0.511	0.405	0.429	0.391	0.169	0.344	0.364	0.334	0.354	0.384	0.377	0.392
COP	0.532	0.533	0.591	0.468	0.496	0.452	0.195	0.398	0.42	0.386	0.409	0.444	0.436	0.453
RES	0.465	0.466	0.516	0.409	0.433	0.395	0.171	0.348	0.367	0.337	0.357	0.388	0.381	0.396
EPI	0.515	0.516	0.572	0.453	0.48	0.438	0.189	0.385	0.407	0.373	0.396	0.43	0.422	0.438
LTM	0.79	0.792	0.877	0.548	0.581	0.53	0.229	0.466	0.493	0.452	0.479	0.52	0.511	0.53
WE	0.6	0.601	0.666	0.722	0.766	0.698	0.301	0.614	0.649	0.434	0.461	0.5	0.491	0.51
RWM	0.468	0.469	0.519	0.411	0.436	0.397	0.171	0.349	0.369	0.764	0.81	0.879	0.863	0.897
B9	0.15	0.151	0.167	0.132	0.14	0.128	0.055	0.112	0.119	0.109	0.116	0.125	0.123	0.128
B92	0.413	0.414	0.459	0.363	0.385	0.351	0.152	0.309	0.327	0.3	0.318	0.345	0.339	0.352
B93	0.368	0.369	0.408	0.323	0.343	0.313	0.135	0.275	0.291	0.267	0.283	0.307	0.301	0.313
B97	0.426	0.427	0.473	0.375	0.397	0.362	0.156	0.319	0.337	0.309	0.328	0.356	0.349	0.363
B99	0.478	0.479	0.531	0.42	0.445	0.406	0.175	0.357	0.378	0.346	0.367	0.399	0.392	0.407
B103	0.376	0.377	0.418	0.331	0.351	0.32	0.138	0.281	0.297	0.273	0.289	0.314	0.308	0.32
B105	0.329	0.33	0.365	0.289	0.306	0.279	0.121	0.246	0.26	0.238	0.253	0.274	0.269	0.28
B112	0.368	0.369	0.408	0.323	0.343	0.312	0.135	0.275	0.291	0.267	0.283	0.307	0.301	0.313
B114	0.461	0.462	0.512	0.405	0.429	0.392	0.169	0.345	0.364	0.334	0.354	0.384	0.378	0.392
B113	0.445	0.446	0.494	0.391	0.414	0.378	0.163	0.332	0.351	0.322	0.342	0.371	0.364	0.378
B117	0.424	0.425	0.471	0.373	0.395	0.361	0.156	0.317	0.335	0.307	0.326	0.354	0.348	0.361
B101	0.239	0.24	0.265	0.288	0.305	0.278	0.12	0.245	0.259	0.173	0.184	0.199	0.196	0.203
B85	0.317	0.318	0.352	0.382	0.405	0.369	0.159	0.325	0.343	0.23	0.244	0.264	0.26	0.27
B83	0.403	0.404	0.447	0.279	0.296	0.27	0.117	0.238	0.251	0.23	0.244	0.265	0.261	0.271
B70	0.576	0.577	0.639	0.399	0.423	0.386	0.167	0.34	0.359	0.329	0.349	0.379	0.372	0.386
B68	0.705	0.707	0.783	0.489	0.518	0.473	0.204	0.416	0.439	0.403	0.427	0.464	0.456	0.473
B65	1	0.626	0.693	0.433	0.459	0.419	0.181	0.368	0.389	0.357	0.379	0.411	0.404	0.419
B66	0.626	1	0.695	0.434	0.46	0.419	0.181	0.369	0.39	0.358	0.379	0.412	0.405	0.42
B64	0.693	0.695	1	0.481	0.51	0.465	0.201	0.409	0.432	0.396	0.42	0.456	0.448	0.465
B53	0.433	0.434	0.481	1	0.553	0.504	0.218	0.444	0.469	0.314	0.333	0.361	0.355	0.368
B46	0.459	0.46	0.51	0.553	1	0.534	0.231	0.47	0.497	0.333	0.353	0.383	0.376	0.391
B44	0.419	0.419	0.465	0.504	0.534	1	0.21	0.429	0.453	0.303	0.322	0.349	0.343	0.356
B24	0.181	0.181	0.201	0.218	0.231	0.21	1	0.185	0.196	0.131	0.139	0.151	0.148	0.154
B42	0.368	0.369	0.409	0.444	0.47	0.429	0.185	1	0.399	0.267	0.283	0.307	0.302	0.313
B19	0.389	0.39	0.432	0.469	0.497	0.453	0.196	0.399	1	0.282	0.299	0.325	0.319	0.331
B91	0.357	0.358	0.396	0.314	0.333	0.303	0.131	0.267	0.282	1	0.618	0.671	0.659	0.685
B63	0.379	0.379	0.42	0.333	0.353	0.322	0.139	0.283	0.299	0.618	1	0.711	0.699	0.726
B48	0.411	0.412	0.456	0.361	0.383	0.349	0.151	0.307	0.325	0.671	0.711	1	0.759	0.788
B31	0.404	0.405	0.448	0.355	0.376	0.343	0.148	0.302	0.319	0.659	0.699	0.759	1	0.774
B34	0.419	0.42	0.465	0.368	0.391	0.356	0.154	0.313	0.331	0.685	0.726	0.788	0.774	1
B29	0.377	0.378	0.419	0.332	0.352	0.321	0.138	0.282	0.298	0.616	0.653	0.709	0.697	0.724
B12	0.088	0.088	0.098	0.077	0.082	0.075	0.032	0.066	0.069	0.064	0.068	0.073	0.072	0.075
B17	0.109	0.109	0.121	0.096	0.101	0.092	0.04	0.081	0.086	0.079	0.084	0.091	0.089	0.092
B10	0.135	0.136	0.15	0.119	0.126	0.115	0.05	0.101	0.107	0.098	0.104	0.113	0.111	0.115
B2	0.255	0.256	0.284	0.225	0.238	0.217	0.094	0.191	0.202	0.185	0.196	0.213	0.209	0.217
B1	0.27	0.271	0.3	0.238	0.252	0.23	0.099	0.202	0.214	0.196	0.208	0.225	0.221	0.23
B3	0.23	0.23	0.255	0.202	0.214	0.195	0.084	0.172	0.181	0.166	0.177	0.192	0.188	0.195
B5	0.317	0.318	0.352	0.279	0.296	0.27	0.116	0.237	0.251	0.23	0.244	0.265	0.26	0.27
B25	0.219	0.22	0.243	0.193	0.204	0.186	0.08	0.164	0.173	0.159	0.168	0.183	0.179	0.186
B8	0.383	0.384	0.426	0.337	0.357	0.326	0.141	0.287	0.303	0.278	0.295	0.32	0.314	0.326
B7	0.419	0.42	0.466	0.369	0.391	0.356	0.154	0.314	0.331	0.304	0.322	0.35	0.344	0.357

Table M.6 All Implied Correlations Estimates *(Continued)*

	B29	B12	B17	B10	B2	B1	B3	B5	B25	B8	B7
MPAS	0.538	0.125	0.155	0.193	0.364	0.385	0.327	0.452	0.312	0.546	0.598
OP	0.393	0.171	0.212	0.264	0.404	0.428	0.363	0.52	0.359	0.747	0.817
CTP	0.154	0.436	0.539	0.672	0.353	0.374	0.318	0.475	0.328	0.293	0.321
MOT	0.297	0.234	0.289	0.36	0.659	0.697	0.592	0.557	0.385	0.458	0.501
IP	0.316	0.269	0.333	0.415	0.477	0.505	0.429	0.77	0.531	0.505	0.552
FB	0.353	0.082	0.102	0.127	0.239	0.253	0.215	0.297	0.205	0.358	0.392
COP	0.408	0.095	0.117	0.146	0.276	0.292	0.248	0.343	0.237	0.414	0.453
RES	0.356	0.083	0.103	0.128	0.241	0.255	0.217	0.3	0.207	0.362	0.396
EPI	0.395	0.092	0.114	0.142	0.267	0.283	0.24	0.332	0.229	0.401	0.439
LTM	0.478	0.111	0.138	0.171	0.323	0.342	0.291	0.402	0.277	0.485	0.531
WE	0.459	0.107	0.132	0.165	0.311	0.329	0.28	0.386	0.267	0.467	0.51
RWM	0.807	0.083	0.103	0.128	0.242	0.257	0.218	0.301	0.208	0.364	0.398
B9	0.115	0.326	0.403	0.501	0.264	0.279	0.237	0.355	0.245	0.219	0.239
B92	0.317	0.074	0.091	0.114	0.214	0.227	0.193	0.266	0.184	0.322	0.352
B93	0.282	0.066	0.081	0.101	0.191	0.202	0.172	0.237	0.164	0.286	0.313
B97	0.327	0.076	0.094	0.117	0.221	0.234	0.199	0.275	0.19	0.332	0.363
B99	0.366	0.085	0.105	0.131	0.248	0.262	0.223	0.308	0.213	0.372	0.407
B103	0.288	0.067	0.083	0.103	0.195	0.207	0.176	0.243	0.167	0.293	0.32
B105	0.252	0.059	0.073	0.09	0.17	0.18	0.153	0.212	0.146	0.256	0.28
B112	0.282	0.066	0.081	0.101	0.191	0.202	0.172	0.237	0.164	0.286	0.313
B114	0.353	0.082	0.102	0.127	0.239	0.253	0.215	0.297	0.205	0.359	0.392
B113	0.34	0.079	0.098	0.122	0.231	0.244	0.207	0.286	0.198	0.346	0.379
B117	0.325	0.076	0.094	0.117	0.22	0.233	0.198	0.273	0.189	0.33	0.361
B101	0.183	0.043	0.053	0.066	0.124	0.131	0.111	0.154	0.106	0.186	0.204
B85	0.243	0.057	0.07	0.087	0.164	0.174	0.148	0.204	0.141	0.247	0.27
B83	0.244	0.057	0.07	0.087	0.165	0.174	0.148	0.205	0.141	0.247	0.271
B70	0.348	0.081	0.1	0.125	0.236	0.249	0.212	0.293	0.202	0.353	0.387
B68	0.426	0.099	0.123	0.153	0.288	0.305	0.259	0.359	0.247	0.433	0.474
B65	0.377	0.088	0.109	0.135	0.255	0.27	0.23	0.317	0.219	0.383	0.419
B66	0.378	0.088	0.109	0.136	0.256	0.271	0.23	0.318	0.22	0.384	0.42
B64	0.419	0.098	0.121	0.15	0.284	0.3	0.255	0.352	0.243	0.426	0.466
B53	0.332	0.077	0.096	0.119	0.225	0.238	0.202	0.279	0.193	0.337	0.369
B46	0.352	0.082	0.101	0.126	0.238	0.252	0.214	0.296	0.204	0.357	0.391
B44	0.321	0.075	0.092	0.115	0.217	0.23	0.195	0.27	0.186	0.326	0.356
B24	0.138	0.032	0.04	0.05	0.094	0.099	0.084	0.116	0.08	0.141	0.154
B42	0.282	0.066	0.081	0.101	0.191	0.202	0.172	0.237	0.164	0.287	0.314
B19	0.298	0.069	0.086	0.107	0.202	0.214	0.181	0.251	0.173	0.303	0.331
B91	0.616	0.064	0.079	0.098	0.185	0.196	0.166	0.23	0.159	0.278	0.304
B63	0.653	0.068	0.084	0.104	0.196	0.208	0.177	0.244	0.168	0.295	0.322
B48	0.709	0.073	0.091	0.113	0.213	0.225	0.192	0.265	0.183	0.32	0.35
B31	0.697	0.072	0.089	0.111	0.209	0.221	0.188	0.26	0.179	0.314	0.344
B34	0.724	0.075	0.092	0.115	0.217	0.23	0.195	0.27	0.186	0.326	0.357
B29	1	0.067	0.083	0.104	0.196	0.207	0.176	0.243	0.168	0.294	0.321
B12	0.067	1	0.235	0.293	0.154	0.163	0.138	0.207	0.143	0.128	0.14
B17	0.083	0.235	1	0.362	0.19	0.201	0.171	0.256	0.177	0.158	0.173
B10	0.104	0.293	0.362	1	0.237	0.251	0.213	0.319	0.22	0.197	0.215
B2	0.196	0.154	0.19	0.237	1	0.459	0.39	0.367	0.253	0.302	0.33
B1	0.207	0.163	0.201	0.251	0.459	1	0.413	0.388	0.268	0.319	0.349
B3	0.176	0.138	0.171	0.213	0.39	0.413	1	0.33	0.228	0.271	0.297
B5	0.243	0.207	0.256	0.319	0.367	0.388	0.33	1	0.409	0.389	0.425
B25	0.168	0.143	0.177	0.22	0.253	0.268	0.228	0.409	1	0.268	0.293
B8	0.294	0.128	0.158	0.197	0.302	0.319	0.271	0.389	0.268	1	0.61
B7	0.321	0.14	0.173	0.215	0.33	0.349	0.297	0.425	0.293	0.61	1

Table M.7 Standardised Residual Covariances

	B9	B92	B93	B97	B99	B103	B105	B112	B114	B113	B117	B101	B85	B83
B9	-0.001	-1.816	-0.295	0.408	0.613	-0.709	-0.819	-0.424	-0.102	-0.254	0.247	-0.965	-1.579	0.779
B92	-1.816	0	0	0.885	0.873	0.212	0.906	0.423	-0.147	0.132	1.292	1.408	1.066	-0.601
B93	-0.295	0	0	1.919	0.939	0.001	1.131	-0.24	-0.658	-0.611	0.371	0.956	1.878	-0.848
B97	0.408	0.885	1.919	0	0	0.744	0.25	-0.967	0.014	-0.446	0.157	0.77	-0.636	-0.465
B99	0.613	0.873	0.939	0	0	0.374	-0.276	-0.72	-0.026	0.024	0.006	0.392	-0.075	0.28
B103	-0.709	0.212	0.001	0.744	0.374	0	0	-0.11	0.551	-0.011	1.39	1.843	-1.101	-0.437
B105	-0.819	0.906	1.131	0.25	-0.276	0	0	0.528	0.147	-0.559	1.153	2.496	0.186	-0.313
B112	-0.424	0.423	-0.24	-0.967	-0.72	-0.11	0.528	0	0.054	0.384	-0.258	-0.463	-1.014	1.278
B114	-0.102	-0.147	-0.658	0.014	-0.026	0.551	0.147	0.054	0	-0.024	-0.084	1.059	0.215	0.299
B113	-0.254	0.132	-0.611	-0.446	0.024	-0.011	-0.559	0.384	-0.024	0	0.013	0.666	-0.797	1.41
B117	0.247	1.292	0.371	0.157	0.006	1.39	1.153	-0.258	-0.084	0.013	0	0.608	-1.425	1.198
B101	-0.965	1.408	0.956	0.77	0.392	1.843	2.496	-0.463	1.059	0.666	0.608	0	-0.23	0.498
B85	-1.579	1.066	1.878	-0.636	-0.075	-1.101	0.186	-1.014	0.215	-0.797	-1.425	-0.23	0	1.2
B83	0.779	-0.601	-0.848	-0.465	0.28	-0.437	-0.313	1.278	0.299	1.41	1.198	0.498	1.2	0
B70	-0.418	-0.326	0.38	0.074	-0.4	0.05	-0.858	0.76	1.187	0.331	1.169	1.18	0.434	1.429
B68	-0.535	0.149	-0.29	0.162	0.101	-0.083	-0.223	0.457	0.897	0.416	1.163	0.087	-0.171	-0.522
B65	-0.767	-0.877	-0.038	-0.909	-0.853	-0.395	-1.094	-1.497	-0.616	-0.812	-0.561	0.031	1.172	-0.976
B66	-1.383	-0.572	0.137	-0.409	-1.078	0.785	-0.014	-0.377	-0.56	-1.049	0.195	0.655	-0.349	0.135
B64	-0.615	0.264	0.54	-0.084	-0.236	-0.528	-0.511	-0.584	-0.027	-0.144	0.675	1.075	0.915	0.242
B53	-2.091	0.21	-0.396	0.145	0.633	-0.25	-0.177	-1.99	0.077	-0.196	-0.855	-1.519	-0.006	0.424
B46	-0.911	0.687	0.315	0.249	-0.001	0.053	0.523	-0.206	1.031	-0.4	0.162	-0.778	0.01	0.05
B44	-1.138	1.493	1.685	-0.01	0.075	0.808	0.995	0.373	0.273	-0.197	0.341	0.324	-0.264	0.482
B24	0.603	-0.53	0.911	-0.991	-0.925	0.221	-0.106	-1.822	-0.718	-0.643	-1.713	-0.487	1.392	0.435
B42	-2.111	0.254	0.091	-1.027	-0.048	0.577	0.389	-1.147	-0.152	-0.635	-0.089	1.706	-0.032	-1.596
B19	-2.309	-0.632	-0.938	-1.769	-0.66	0.547	0.268	-1.363	-0.504	-0.727	-1.178	-0.171	0.041	0.791
B91	1.104	-0.962	-2.223	1.541	0.878	0.296	-0.228	-1.005	-0.209	-0.975	-0.171	0.744	-0.312	0.281
B63	1.455	-0.515	-1.105	1.215	0.631	0.458	1.306	-1.205	0.459	-0.056	0.731	1.122	-0.101	0.03
B48	0.698	-1.596	-2.343	0.376	-0.007	0.393	0.967	-1.391	-0.193	-0.931	0.023	-0.386	-0.085	0.438
B31	1.585	-1.291	-1.819	0.423	-0.024	-0.916	0.11	-1.84	-1.463	-1.722	-1.154	-0.204	0.334	0.414
B34	2.519	-1.443	-1.439	0.576	0.42	-0.236	1.212	-2.322	-0.843	-1.015	-0.533	0.375	0.216	0.694
B29	2.146	0.56	-0.376	1.523	1.76	-0.485	0.817	-1.179	-0.307	-0.71	0.236	0.124	1.107	0.718
B12	0.536	1.058	1.789	1.803	2.183	0.597	0.454	2.406	1.772	0.364	1.333	0.393	-0.558	2.315
B17	0.287	-0.87	0.518	0.771	0.563	-0.653	-0.845	-0.288	-0.164	-0.424	-0.874	-1.272	1.099	0.339
B10	0.234	-1.787	-0.82	0.474	-1.28	-0.388	-0.204	-0.194	0.425	0.112	0.445	1.142	0.201	1.588
B2	-0.313	-1.256	-1.175	-0.022	-0.596	-3.087	-2.469	-1.645	-0.816	-1.125	-0.789	0.105	-0.884	0.105
B1	-1.262	0.294	1.208	1.527	1.303	0.265	0.792	0.261	1.214	0.491	0.4	1.773	1.193	0.314
B3	1.55	-0.378	-1.022	0.234	0.809	-1.427	-1.024	-0.319	0.136	0.496	-0.054	-0.105	-1.366	0.267
B5	-1.553	-1.606	-0.899	0.74	0.643	-1.766	-2.423	-0.439	0.169	0.002	1.251	-0.582	-1.022	0.369
B25	0.113	-1.827	0.004	0.47	0.257	-2.136	-2.178	-0.008	-1.24	-1.294	-1.28	-0.68	0.725	0.094
B8	-0.796	-1.497	-0.668	-1.536	-0.976	-0.927	-1.148	-0.957	0.905	0.234	1.581	0.712	-0.525	1.288
B7	-1.103	-1.008	-0.86	-1.12	-0.411	-0.386	-0.333	0.473	0.467	-0.265	1.534	-0.233	-1.367	0.481

Table M.7 Standardised Residual Covariances *(Continued)*

	B70	B68	B65	B66	B64	B53	B46	B44	B24	B42	B19	B91	B63	B48
B9	-0.418	-0.535	-0.767	-1.383	-0.615	-2.091	-0.911	-1.138	0.603	-2.111	-2.309	1.104	1.455	0.698
B92	-0.326	0.149	-0.877	-0.572	0.264	0.21	0.687	1.493	-0.53	0.254	-0.632	-0.962	-0.515	-1.596
B93	0.38	-0.29	-0.038	0.137	0.54	-0.396	0.315	1.685	0.911	0.091	-0.938	-2.223	-1.105	-2.343
B97	0.074	0.162	-0.909	-0.409	-0.084	0.145	0.249	-0.01	-0.991	-1.027	-1.769	1.541	1.215	0.376
B99	-0.4	0.101	-0.853	-1.078	-0.236	0.633	-0.001	0.075	-0.925	-0.048	-0.66	0.878	0.631	-0.007
B103	0.05	-0.083	-0.395	0.785	-0.528	-0.25	0.053	0.808	0.221	0.577	0.547	0.296	0.458	0.393
B105	-0.858	-0.223	-1.094	-0.014	-0.511	-0.177	0.523	0.995	-0.106	0.389	0.268	-0.228	1.306	0.967
B112	0.76	0.457	-1.497	-0.377	-0.584	-1.99	-0.206	0.373	-1.822	-1.147	-1.363	-1.005	-1.205	-1.391
B114	1.187	0.897	-0.616	-0.56	-0.027	0.077	1.031	0.273	-0.718	-0.152	-0.504	-0.209	0.459	-0.193
B113	0.331	0.416	-0.812	-1.049	-0.144	-0.196	-0.4	-0.197	-0.643	-0.635	-0.727	-0.975	-0.056	-0.931
B117	1.169	1.163	-0.561	0.195	0.675	-0.855	0.162	0.341	-1.713	-0.089	-1.178	-0.171	0.731	0.023
B101	1.18	0.087	0.031	0.655	1.075	-1.519	-0.778	0.324	-0.487	1.706	-0.171	0.744	1.122	-0.386
B85	0.434	-0.171	1.172	-0.349	0.915	-0.006	0.01	-0.264	1.392	-0.032	0.041	-0.312	-0.101	-0.085
B83	1.429	-0.522	-0.976	0.135	0.242	0.424	0.05	0.482	0.435	-1.596	0.791	0.281	0.03	0.438
B70	0	0.287	-0.558	-0.35	-0.392	-0.634	-0.489	0.909	-0.169	-0.357	-0.667	0.543	0.969	0.707
B68	0.287	0	-0.074	0.082	-0.124	-0.132	-0.176	-0.237	-0.275	-0.199	-0.593	-0.315	0.911	0.103
B65	-0.558	-0.074	0	0.726	0.431	0.358	-0.588	-0.26	-0.14	-0.28	0.597	-0.822	0.354	-0.441
B66	-0.35	0.082	0.726	0	-0.094	-0.245	0.331	0.79	0.62	-0.251	-0.267	-0.746	0.389	-0.288
B64	-0.392	-0.124	0.431	-0.094	0	-0.101	-0.155	0.133	0.57	-0.44	0.206	-0.107	1.264	-0.046
B53	-0.634	-0.132	0.358	-0.245	-0.101	0	0.108	-0.391	0.966	0.053	0.616	1.181	0.301	0.828
B46	-0.489	-0.176	-0.588	0.331	-0.155	0.108	0	0.341	-0.642	-0.444	0.093	1.325	0.213	0.281
B44	0.909	-0.237	-0.26	0.79	0.133	-0.391	0.341	0	-0.697	0.5	-0.618	-0.075	-0.484	-0.656
B24	-0.169	-0.275	-0.14	0.62	0.57	0.966	-0.642	-0.697	0	-0.483	0.824	-1.147	0.089	-0.6
B42	-0.357	-0.199	-0.28	-0.251	-0.44	0.053	-0.444	0.5	-0.483	0	0.323	-0.749	-0.789	-1.455
B19	-0.667	-0.593	0.597	-0.267	0.206	0.616	0.093	-0.618	0.824	0.323	0	-0.37	-0.197	-1.388
B91	0.543	-0.315	-0.822	-0.746	-0.107	1.181	1.325	-0.075	-1.147	-0.749	-0.37	0	-0.192	0.435
B63	0.969	0.911	0.354	0.389	1.264	0.301	0.213	-0.484	0.089	-0.789	-0.197	-0.192	0	-0.193
B48	0.707	0.103	-0.441	-0.288	-0.046	0.828	0.281	-0.656	-0.6	-1.455	-1.388	0.435	-0.193	0
B31	0.585	-0.756	-0.481	-1.402	-0.405	-0.223	0.436	-0.632	-0.395	-1.258	-0.509	0.291	0.275	-0.172
B34	0.757	-0.29	-0.457	-0.719	0.043	0.554	0.568	-0.529	0.603	-1.024	0.337	-0.268	-0.022	0.067
B29	1.528	0.453	-0.708	-0.633	0.558	0.197	0.292	0.198	0.466	-0.251	-0.811	-0.449	-0.143	0.038
B12	0.896	-0.129	-0.421	-0.687	0.508	-0.015	-0.121	0.055	-0.27	-1.174	0.858	2.305	3.104	1.772
B17	-0.986	-1.602	-1.081	-1.44	-1.22	-0.569	0.76	0.527	0.327	-0.697	-0.629	-0.263	-0.295	-0.951
B10	1.906	0.343	0.545	0.016	-0.194	-1.274	-0.126	-0.618	0.601	-1.54	0.44	1.14	1.608	1.332
B2	-0.234	-0.978	-2.284	-2.13	-0.2	0.332	-1.593	-1.834	0.255	-1.069	-1.055	0.46	0.893	0.046
B1	1.172	1.057	0.478	0.225	0.985	1.021	0.791	0.607	2.087	1.884	1.218	0.639	2.186	1.123
B3	0.355	0.236	-0.265	-1.513	0.451	0.005	-0.937	-1.177	0.2	-1.13	-0.049	-0.125	1.409	0.651
B5	1.713	0.692	0.456	-0.008	0.652	-1.206	0.006	-1.217	-0.471	-0.081	0.394	1.255	1.764	1.095
B25	0.742	-0.595	-0.944	-0.675	-0.752	0.402	0.956	-0.747	1.84	-0.367	0.602	0.696	0.601	0.036
B8	1.888	0.672	0.924	0.17	0.798	-0.197	-0.314	-0.677	0.124	-0.03	1.293	0.108	0.468	0.768
B7	1.106	0.001	-0.153	-0.553	0.202	-0.114	-0.449	-0.686	0.317	-0.287	0.785	0.64	0.025	1.142

Table M.7 Standardised Residual Covariances *(Continued)*

	B31	B34	B29	B12	B17	B10	B2	B1	B3	B5	B25	B8	B7
B9	1.585	2.519	2.146	0.536	0.287	0.234	-0.313	-1.262	1.55	-1.553	0.113	-0.796	-1.103
B92	-1.291	-1.443	0.56	1.058	-0.87	-1.787	-1.256	0.294	-0.378	-1.606	-1.827	-1.497	-1.008
B93	-1.819	-1.439	-0.376	1.789	0.518	-0.82	-1.175	1.208	-1.022	-0.899	0.004	-0.668	-0.86
B97	0.423	0.576	1.523	1.803	0.771	0.474	-0.022	1.527	0.234	0.74	0.47	-1.536	-1.12
B99	-0.024	0.42	1.76	2.183	0.563	-1.28	-0.596	1.303	0.809	0.643	0.257	-0.976	-0.411
B103	-0.916	-0.236	-0.485	0.597	-0.653	-0.388	-3.087	0.265	-1.427	-1.766	-2.136	-0.927	-0.386
B105	0.11	1.212	0.817	0.454	-0.845	-0.204	-2.469	0.792	-1.024	-2.423	-2.178	-1.148	-0.333
B112	-1.84	-2.322	-1.179	2.406	-0.288	-0.194	-1.645	0.261	-0.319	-0.439	-0.008	-0.957	0.473
B114	-1.463	-0.843	-0.307	1.772	-0.164	0.425	-0.816	1.214	0.136	0.169	-1.24	0.905	0.467
B113	-1.722	-1.015	-0.71	0.364	-0.424	0.112	-1.125	0.491	0.496	0.002	-1.294	0.234	-0.265
B117	-1.154	-0.533	0.236	1.333	-0.874	0.445	-0.789	0.4	-0.054	1.251	-1.28	1.581	1.534
B101	-0.204	0.375	0.124	0.393	-1.272	1.142	0.105	1.773	-0.105	-0.582	-0.68	0.712	-0.233
B85	0.334	0.216	1.107	-0.558	1.099	0.201	-0.884	1.193	-1.366	-1.022	0.725	-0.525	-1.367
B83	0.414	0.694	0.718	2.315	0.339	1.588	0.105	0.314	0.267	0.369	0.094	1.288	0.481
B70	0.585	0.757	1.528	0.896	-0.986	1.906	-0.234	1.172	0.355	1.713	0.742	1.888	1.106
B68	-0.756	-0.29	0.453	-0.129	-1.602	0.343	-0.978	1.057	0.236	0.692	-0.595	0.672	0.001
B65	-0.481	-0.457	-0.708	-0.421	-1.081	0.545	-2.284	0.478	-0.265	0.456	-0.944	0.924	-0.153
B66	-1.402	-0.719	-0.633	-0.687	-1.44	0.016	-2.13	0.225	-1.513	-0.008	-0.675	0.17	-0.553
B64	-0.405	0.043	0.558	0.508	-1.22	-0.194	-0.2	0.985	0.451	0.652	-0.752	0.798	0.202
B53	-0.223	0.554	0.197	-0.015	-0.569	-1.274	0.332	1.021	0.005	-1.206	0.402	-0.197	-0.114
B46	0.436	0.568	0.292	-0.121	0.76	-0.126	-1.593	0.791	-0.937	0.006	0.956	-0.314	-0.449
B44	-0.632	-0.529	0.198	0.055	0.527	-0.618	-1.834	0.607	-1.177	-1.217	-0.747	-0.677	-0.686
B24	-0.395	0.603	0.466	-0.27	0.327	0.601	0.255	2.087	0.2	-0.471	1.84	0.124	0.317
B42	-1.258	-1.024	-0.251	-1.174	-0.697	-1.54	-1.069	1.884	-1.13	-0.081	-0.367	-0.03	-0.287
B19	-0.509	0.337	-0.811	0.858	-0.629	0.44	-1.055	1.218	-0.049	0.394	0.602	1.293	0.785
B91	0.291	-0.268	-0.449	2.305	-0.263	1.14	0.46	0.639	-0.125	1.255	0.696	0.108	0.64
B63	0.275	-0.022	-0.143	3.104	-0.295	1.608	0.893	2.186	1.409	1.764	0.601	0.468	0.025
B48	-0.172	0.067	0.038	1.772	-0.951	1.332	0.046	1.123	0.651	1.095	0.036	0.768	1.142
B31	0	0.026	0.001	2.644	-0.13	2.229	-0.739	1.155	1.426	1.18	1.223	1.077	0.065
B34	0.026	0	0.088	2.959	0.323	1.989	0.573	1.926	1.557	1.456	1.628	1.458	0.747
B29	0.001	0.088	0	2.441	-0.252	2.567	0.725	2.039	0.649	2.139	0.957	1.349	0.695
B12	2.644	2.959	2.441	0	0.382	-1.312	0.671	0.602	2.238	-0.343	-0.263	2.433	0.603
B17	-0.13	0.323	-0.252	0.382	0	-0.719	-0.582	-1.382	0.733	0.743	2.306	-2.368	-1.642
B10	2.229	1.989	2.567	-1.312	-0.719	-0.001	-0.099	0.947	0.294	0.548	2.084	1.269	0.023
B2	-0.739	0.573	0.725	0.671	-0.582	-0.099	-0.002	0.205	0.491	0.501	-1.008	0.011	-0.475
B1	1.155	1.926	2.039	0.602	-1.382	0.947	0.205	-0.002	-0.824	-0.111	0.531	-0.071	0.385
B3	1.426	1.557	0.649	2.238	0.733	0.294	0.491	-0.824	-0.002	0.001	-0.585	0.331	0.104
B5	1.18	1.456	2.139	-0.343	0.743	0.548	0.501	-0.111	0.001	-0.021	-0.122	-0.033	0.469
B25	1.223	1.628	0.957	-0.263	2.306	2.084	-1.008	0.531	-0.585	-0.122	-0.01	-1.524	0.244
B8	1.077	1.458	1.349	2.433	-2.368	1.269	0.011	-0.071	0.331	-0.033	-1.524	-0.013	-0.015
B7	0.065	0.747	0.695	0.603	-1.642	0.023	-0.475	0.385	0.104	0.469	0.244	-0.015	-0.016

Table M.8 Standardised Direct Effects Estimates

Effects On	Effects From											
	MPAS	OP	CTP	MOT	IP	FB	COP	RES	EPI	LTM	WE	RWM
OP	0.552	0	0	0	0.306	0	0	0	0	0	0	0
CTP	0	0	0	0.52	0	0	0	0	0	0	0	0
MOT	0.389	0.224	0	0	0	0	0	0	0	0	0	0
IP	0.294	0	0.326	0.362	0	0	0	0	0	0	0	0
FB	0.656	0	0	0	0	0	0	0	0	0	0	0
COP	0.758	0	0	0	0	0	0	0	0	0	0	0
RES	0.662	0	0	0	0	0	0	0	0	0	0	0
EPI	0.734	0	0	0	0	0	0	0	0	0	0	0
LTM	0.888	0	0	0	0	0	0	0	0	0	0	0
WE	0.854	0	0	0	0	0	0	0	0	0	0	0
RWM	0.666	0	0	0	0	0	0	0	0	0	0	0
B9	0	0	0.747	0	0	0	0	0	0	0	0	0
B92	0	0	0	0	0	0	0	0.889	0	0	0	0
B93	0	0	0	0	0	0	0	0.791	0	0	0	0
B97	0	0	0	0	0	0	0.801	0	0	0	0	0
B99	0	0	0	0	0	0	0.899	0	0	0	0	0
B103	0	0	0	0	0	0.817	0	0	0	0	0	0
B105	0	0	0	0	0	0.714	0	0	0	0	0	0
B112	0	0	0	0	0	0	0	0	0.714	0	0	0
B114	0	0	0	0	0	0	0	0	0.894	0	0	0
B113	0	0	0	0	0	0	0	0	0.863	0	0	0
B117	0	0	0	0	0	0	0	0	0.824	0	0	0
B101	0	0	0	0	0	0	0	0	0	0	0.399	0
B85	0	0	0	0	0	0	0	0	0	0	0.529	0
B83	0	0	0	0	0	0	0	0	0	0.51	0	0
B70	0	0	0	0	0	0	0	0	0	0.728	0	0
B68	0	0	0	0	0	0	0	0	0	0.892	0	0
B65	0	0	0	0	0	0	0	0	0	0.79	0	0
B66	0	0	0	0	0	0	0	0	0	0.792	0	0
B64	0	0	0	0	0	0	0	0	0	0.877	0	0
B53	0	0	0	0	0	0	0	0	0	0	0.722	0
B46	0	0	0	0	0	0	0	0	0	0	0.766	0
B44	0	0	0	0	0	0	0	0	0	0	0.698	0
B24	0	0	0	0	0	0	0	0	0	0	0.301	0
B42	0	0	0	0	0	0	0	0	0	0	0.614	0
B19	0	0	0	0	0	0	0	0	0	0	0.649	0
B91	0	0	0	0	0	0	0	0	0	0	0	0.764
B63	0	0	0	0	0	0	0	0	0	0	0	0.81
B48	0	0	0	0	0	0	0	0	0	0	0	0.879
B31	0	0	0	0	0	0	0	0	0	0	0	0.863
B34	0	0	0	0	0	0	0	0	0	0	0	0.897
B29	0	0	0	0	0	0	0	0	0	0	0	0.807
B12	0	0	0.436	0	0	0	0	0	0	0	0	0
B17	0	0	0.539	0	0	0	0	0	0	0	0	0
B10	0	0	0.672	0	0	0	0	0	0	0	0	0
B2	0	0	0	0.659	0	0	0	0	0	0	0	0
B1	0	0	0	0.697	0	0	0	0	0	0	0	0
B3	0	0	0	0.592	0	0	0	0	0	0	0	0
B5	0	0	0	0	0.77	0	0	0	0	0	0	0
B25	0	0	0	0	0.531	0	0	0	0	0	0	0
B8	0	0.747	0	0	0	0	0	0	0	0	0	0
B7	0	0.817	0	0	0	0	0	0	0	0	0	0

Legend: MPAS ≡ Motivation and Performance Antecedents; OP ≡ Organisational Performance; CTP ≡ Capacity to Perform; MOT ≡ Motivation; IP ≡ Individual Performance; FB ≡ Financial Benefits; COP ≡ Clarity of Processes; RES ≡ Resources; EPI ≡ External Perception and Identity; LTM ≡ Leadership of top Management; WE ≡ Work Environment; RWM ≡ Relations with Manager.

Table M.9 Standardised Indirect Effects Estimates

Effects On	Effects From											
	MPAS	OP	CTP	MOT	IP	FB	COP	RES	EPI	LTM	WE	RWM
OP	0.18	0.038	0.103	0.168	0.012	0	0	0	0	0	0	0
CTP	0.287	0.121	0.012	0.02	0.037	0	0	0	0	0	0	0
MOT	0.164	0.008	0.023	0.038	0.071	0	0	0	0	0	0	0
IP	0.294	0.124	0.012	0.19	0.038	0	0	0	0	0	0	0
FB	0	0	0	0	0	0	0	0	0	0	0	0
COP	0	0	0	0	0	0	0	0	0	0	0	0
RES	0	0	0	0	0	0	0	0	0	0	0	0
EPI	0	0	0	0	0	0	0	0	0	0	0	0
LTM	0	0	0	0	0	0	0	0	0	0	0	0
WE	0	0	0	0	0	0	0	0	0	0	0	0
RWM	0	0	0	0	0	0	0	0	0	0	0	0
B9	0.214	0.09	0.009	0.403	0.028	0	0	0	0	0	0	0
B92	0.589	0	0	0	0	0	0	0	0	0	0	0
B93	0.524	0	0	0	0	0	0	0	0	0	0	0
B97	0.607	0	0	0	0	0	0	0	0	0	0	0
B99	0.681	0	0	0	0	0	0	0	0	0	0	0
B103	0.536	0	0	0	0	0	0	0	0	0	0	0
B105	0.468	0	0	0	0	0	0	0	0	0	0	0
B112	0.524	0	0	0	0	0	0	0	0	0	0	0
B114	0.657	0	0	0	0	0	0	0	0	0	0	0
B113	0.633	0	0	0	0	0	0	0	0	0	0	0
B117	0.605	0	0	0	0	0	0	0	0	0	0	0
B101	0.341	0	0	0	0	0	0	0	0	0	0	0
B85	0.452	0	0	0	0	0	0	0	0	0	0	0
B83	0.453	0	0	0	0	0	0	0	0	0	0	0
B70	0.647	0	0	0	0	0	0	0	0	0	0	0
B68	0.793	0	0	0	0	0	0	0	0	0	0	0
B65	0.702	0	0	0	0	0	0	0	0	0	0	0
B66	0.703	0	0	0	0	0	0	0	0	0	0	0
B64	0.779	0	0	0	0	0	0	0	0	0	0	0
B53	0.617	0	0	0	0	0	0	0	0	0	0	0
B46	0.654	0	0	0	0	0	0	0	0	0	0	0
B44	0.596	0	0	0	0	0	0	0	0	0	0	0
B24	0.257	0	0	0	0	0	0	0	0	0	0	0
B42	0.525	0	0	0	0	0	0	0	0	0	0	0
B19	0.554	0	0	0	0	0	0	0	0	0	0	0
B91	0.509	0	0	0	0	0	0	0	0	0	0	0
B63	0.539	0	0	0	0	0	0	0	0	0	0	0
B48	0.585	0	0	0	0	0	0	0	0	0	0	0
B31	0.575	0	0	0	0	0	0	0	0	0	0	0
B34	0.597	0	0	0	0	0	0	0	0	0	0	0
B29	0.538	0	0	0	0	0	0	0	0	0	0	0
B12	0.125	0.053	0.005	0.235	0.016	0	0	0	0	0	0	0
B17	0.155	0.065	0.006	0.291	0.02	0	0	0	0	0	0	0
B10	0.193	0.081	0.008	0.362	0.025	0	0	0	0	0	0	0
B2	0.364	0.153	0.015	0.025	0.047	0	0	0	0	0	0	0
B1	0.385	0.162	0.016	0.026	0.05	0	0	0	0	0	0	0
B3	0.327	0.138	0.014	0.022	0.042	0	0	0	0	0	0	0
B5	0.452	0.095	0.261	0.424	0.029	0	0	0	0	0	0	0
B25	0.312	0.066	0.18	0.293	0.02	0	0	0	0	0	0	0
B8	0.546	0.028	0.077	0.126	0.237	0	0	0	0	0	0	0
B7	0.598	0.031	0.085	0.138	0.259	0	0	0	0	0	0	0

Legend: MPAS ≡ Motivation and Performance Antecedents; OP ≡ Organisational Performance; CTP ≡ Capacity to Perform; MOT ≡ Motivation; IP ≡ Individual Performance; FB ≡ Financial Benefits; COP ≡ Clarity of Processes; RES ≡ Resources; EPI ≡ External Perception and Identity; LTM ≡ Leadership of top Management; WE ≡ Work Environment; RWM ≡ Relations with Manager.

Table M.10 Standardised Total Direct Effects Estimates

Effects On	Effects From											
	MPAS	OP	CTP	MOT	IP	FB	COP	RES	EPI	LTM	WE	RWM
OP	0.732	0.038	0.103	0.168	0.317	0	0	0	0	0	0	0
CTP	0.287	0.121	0.012	0.539	0.037	0	0	0	0	0	0	0
MOT	0.553	0.233	0.023	0.038	0.071	0	0	0	0	0	0	0
IP	0.588	0.124	0.339	0.551	0.038	0	0	0	0	0	0	0
FB	0.656	0	0	0	0	0	0	0	0	0	0	0
COP	0.758	0	0	0	0	0	0	0	0	0	0	0
RES	0.662	0	0	0	0	0	0	0	0	0	0	0
EPI	0.734	0	0	0	0	0	0	0	0	0	0	0
LTM	0.888	0	0	0	0	0	0	0	0	0	0	0
WE	0.854	0	0	0	0	0	0	0	0	0	0	0
RWM	0.666	0	0	0	0	0	0	0	0	0	0	0
B9	0.214	0.09	0.756	0.403	0.028	0	0	0	0	0	0	0
B92	0.589	0	0	0	0	0	0	0.889	0	0	0	0
B93	0.524	0	0	0	0	0	0	0.791	0	0	0	0
B97	0.607	0	0	0	0	0	0.801	0	0	0	0	0
B99	0.681	0	0	0	0	0	0.899	0	0	0	0	0
B103	0.536	0	0	0	0	0.817	0	0	0	0	0	0
B105	0.468	0	0	0	0	0.714	0	0	0	0	0	0
B112	0.524	0	0	0	0	0	0	0	0.714	0	0	0
B114	0.657	0	0	0	0	0	0	0	0.894	0	0	0
B113	0.633	0	0	0	0	0	0	0	0.863	0	0	0
B117	0.605	0	0	0	0	0	0	0	0.824	0	0	0
B101	0.341	0	0	0	0	0	0	0	0	0	0.399	0
B85	0.452	0	0	0	0	0	0	0	0	0	0.529	0
B83	0.453	0	0	0	0	0	0	0	0	0.51	0	0
B70	0.647	0	0	0	0	0	0	0	0	0.728	0	0
B68	0.793	0	0	0	0	0	0	0	0	0.892	0	0
B65	0.702	0	0	0	0	0	0	0	0	0.79	0	0
B66	0.703	0	0	0	0	0	0	0	0	0.792	0	0
B64	0.779	0	0	0	0	0	0	0	0	0.877	0	0
B53	0.617	0	0	0	0	0	0	0	0	0	0.722	0
B46	0.654	0	0	0	0	0	0	0	0	0	0.766	0
B44	0.596	0	0	0	0	0	0	0	0	0	0.698	0
B24	0.257	0	0	0	0	0	0	0	0	0	0.301	0
B42	0.525	0	0	0	0	0	0	0	0	0	0.614	0
B19	0.554	0	0	0	0	0	0	0	0	0	0.649	0
B91	0.509	0	0	0	0	0	0	0	0	0	0	0.764
B63	0.539	0	0	0	0	0	0	0	0	0	0	0.81
B48	0.585	0	0	0	0	0	0	0	0	0	0	0.879
B31	0.575	0	0	0	0	0	0	0	0	0	0	0.863
B34	0.597	0	0	0	0	0	0	0	0	0	0	0.897
B29	0.538	0	0	0	0	0	0	0	0	0	0	0.807
B12	0.125	0.053	0.441	0.235	0.016	0	0	0	0	0	0	0
B17	0.155	0.065	0.546	0.291	0.02	0	0	0	0	0	0	0
B10	0.193	0.081	0.68	0.362	0.025	0	0	0	0	0	0	0
B2	0.364	0.153	0.015	0.683	0.047	0	0	0	0	0	0	0
B1	0.385	0.162	0.016	0.723	0.05	0	0	0	0	0	0	0
B3	0.327	0.138	0.014	0.615	0.042	0	0	0	0	0	0	0
B5	0.452	0.095	0.261	0.424	0.799	0	0	0	0	0	0	0
B25	0.312	0.066	0.18	0.293	0.551	0	0	0	0	0	0	0
B8	0.546	0.775	0.077	0.126	0.237	0	0	0	0	0	0	0
B7	0.598	0.848	0.085	0.138	0.259	0	0	0	0	0	0	0

Legend: MPAS ≡ Motivation and Performance Antecedents; OP ≡ Organisational Performance; CTP ≡ Capacity to Perform; MOT ≡ Motivation; IP ≡ Individual Performance; FB ≡ Financial Benefits; COP ≡ Clarity of Processes; RES ≡ Resources; EPI ≡ External Perception and Identity; LTM ≡ Leadership of top Management; WE ≡ Work Environment; RWM ≡ Relations with Manager.

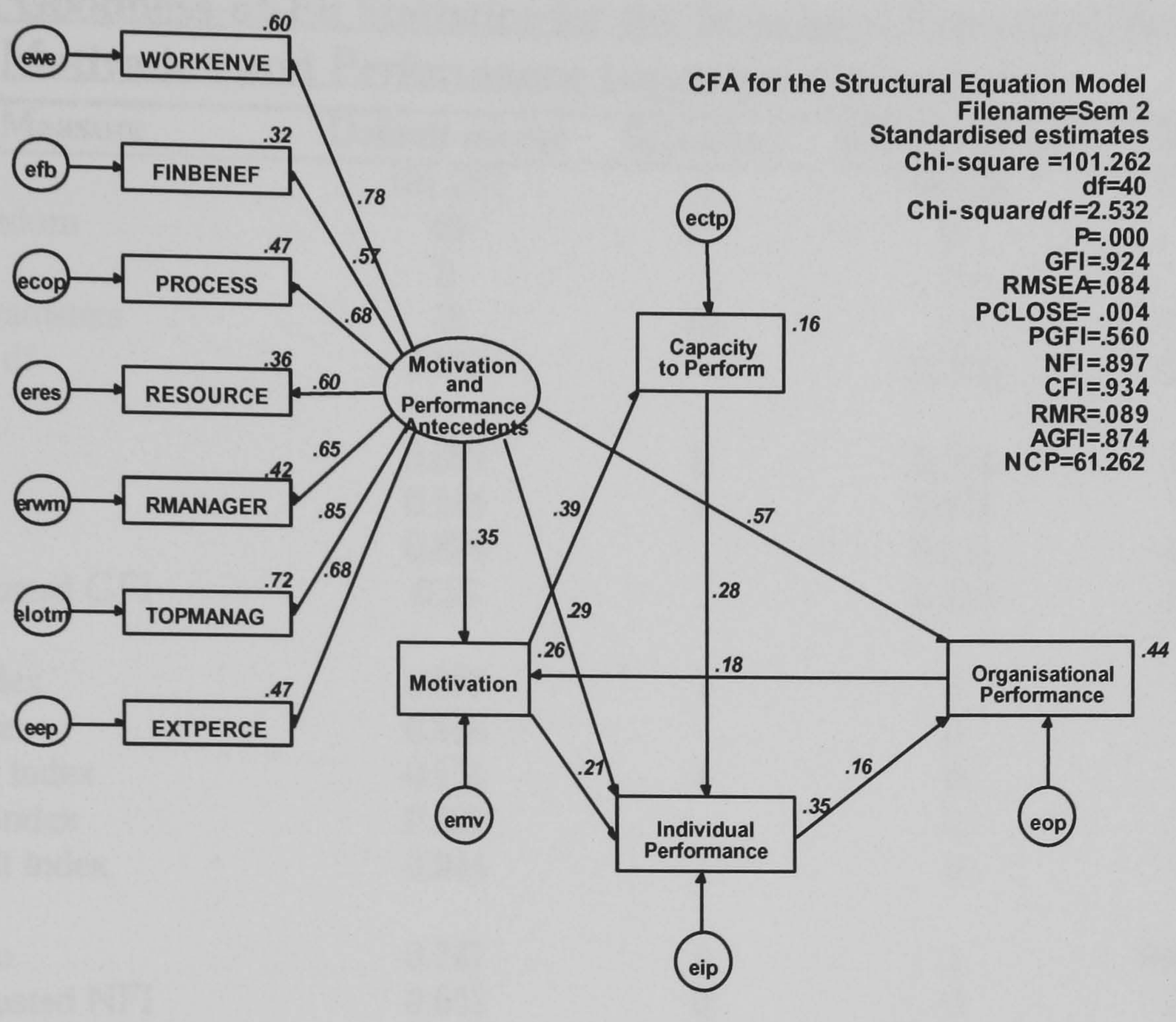


Figure M.3 The Hypothesised Structural Equation Model of Motivation and Performance with Standardised Estimates (aggregated measures)

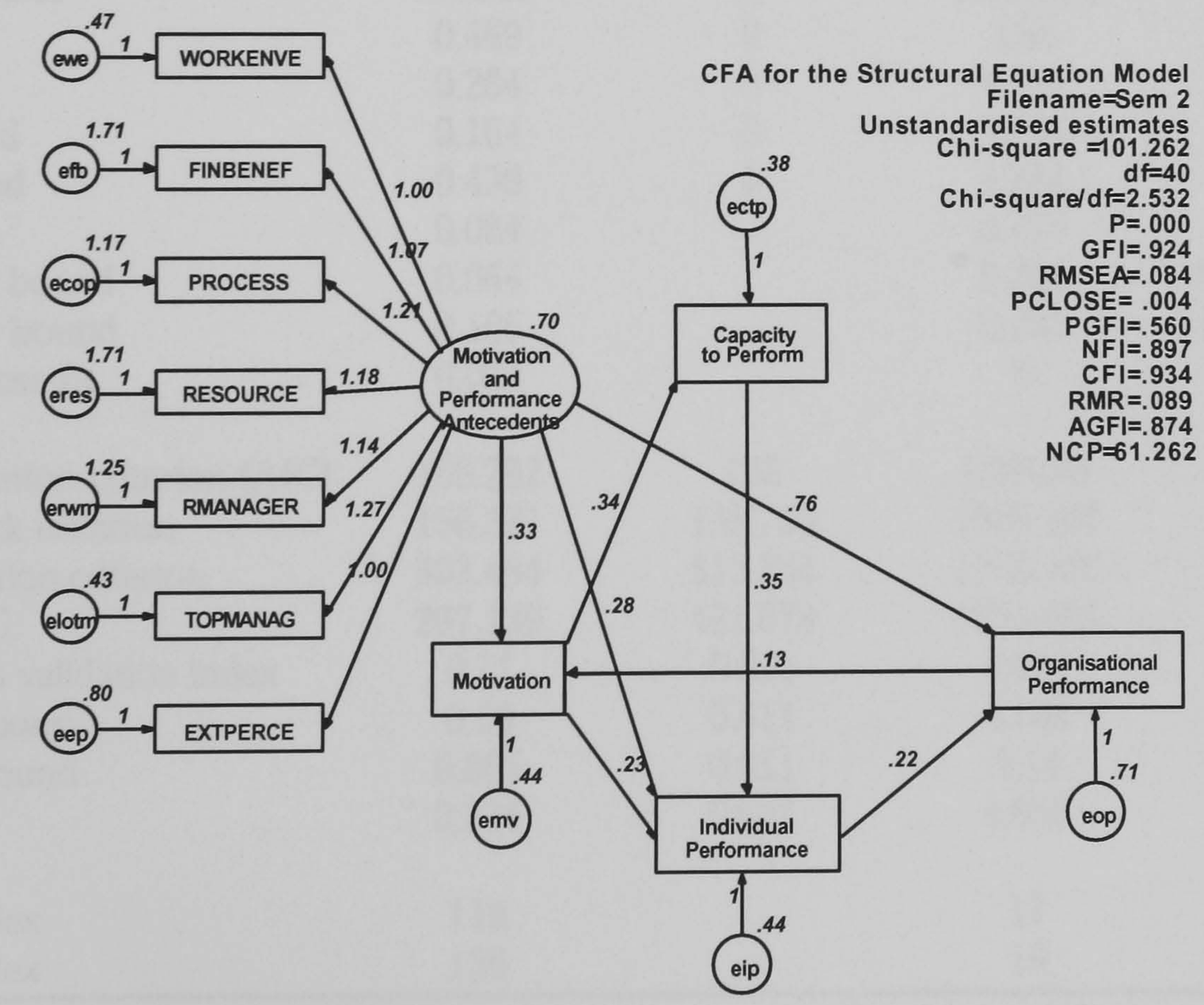


Figure M.4 The Hypothesised Structural Equation Model of Motivation and Performance with Unstandardised Estimates (aggregated measures)

Table M.11 Goodness-of-Fit Statistics for the Structural Equation Model of Motivation and Performance (aggregated measures)

Fit Measure	Default model	Saturated	Independence	Macro
Discrepancy	101.262	0	982.89	CMIN
Degrees of freedom	40	0	55	DF
P	0		0	P
Number of parameters	26	66	11	NPAR
Discrepancy / df	2.532		17.871	CMINDF
RMR	0.089	0	0.594	RMR
GFI	0.924	1	0.376	GFI
Adjusted GFI	0.874		0.251	AGFI
Parsimony-adjusted GFI	0.56		0.313	PGFI
Normed fit index	0.897	1	0	NFI
Relative fit index	0.858		0	RFI
Incremental fit index	0.935	1	0	IFI
Tucker-Lewis index	0.909		0	TLI
Comparative fit index	0.934	1	0	CFI
Parsimony ratio	0.727	0	1	PRATIO
Parsimony-adjusted NFI	0.652	0	0	PNFI
Parsimony-adjusted CFI	0.679	0	0	PCFI
Noncentrality parameter estimate	61.262	0	927.89	NCP
NCP lower bound	35.369	0	829.873	NCPLO
NCP upper bound	94.837	0	1033.319	NCPHI
FMIN	0.469	0	4.55	FMIN
F0	0.284	0	4.296	F0
F0 lower bound	0.164	0	3.842	F0LO
F0 upper bound	0.439	0	4.784	F0HI
RMSEA	0.084		0.279	RMSEA
RMSEA lower bound	0.064		0.264	RMSEALO
RMSEA upper bound	0.105		0.295	RMSEAHI
P for test of close fit	0.004		0	PCLOSE
Akaike information criterion (AIC)	153.262	132	1004.89	AIC
Browne-Cudeck criterion	156.321	139.765	1006.184	BCC
Bayes information criterion	303.484	513.334	1068.446	BIC
Consistent AIC	267.139	421.073	1053.069	CAIC
Expected cross validation index	0.71	0.611	4.652	ECVI
ECVI lower bound	0.59	0.611	4.198	ECVILO
ECVI upper bound	0.865	0.611	5.14	ECVIHI
MECVI	0.724	0.647	4.658	MECVI
Hoelter .05 index	119		17	HFIVE
Hoelter .01 index	136		19	HONE

Table M.12 Modification Indexes for the Structural Equation Model of Motivation and Performance (aggregated measures)

Covariances:			M.I.	Par Change
efb	<---------->	eip	13.313	-0.222
erwm	<---------->	eres	8.297	-0.308
ecop	<---------->	eop	7.990	-0.189
eres	<---------->	ecop	7.924	0.293
erwm	<---------->	ectp	6.746	0.126
erwm	<---------->	ecop	4.289	0.186
efb	<---------->	emv	4.183	-0.125
elotm	<---------->	eop	4.024	0.091
Regression Weights:			M.I.	Par Change
FINBENEF	<----------	indperf	12.368	-0.390
RMANAGER	<----------	capacity	9.562	0.367
RMANAGER	<----------	indperf	6.217	0.240
RMANAGER	<----------	RESOURCE	4.993	-0.108
PROCESS	<----------	RESOURCE	4.775	0.103
RESOURCE	<----------	RMANAGER	4.461	-0.132

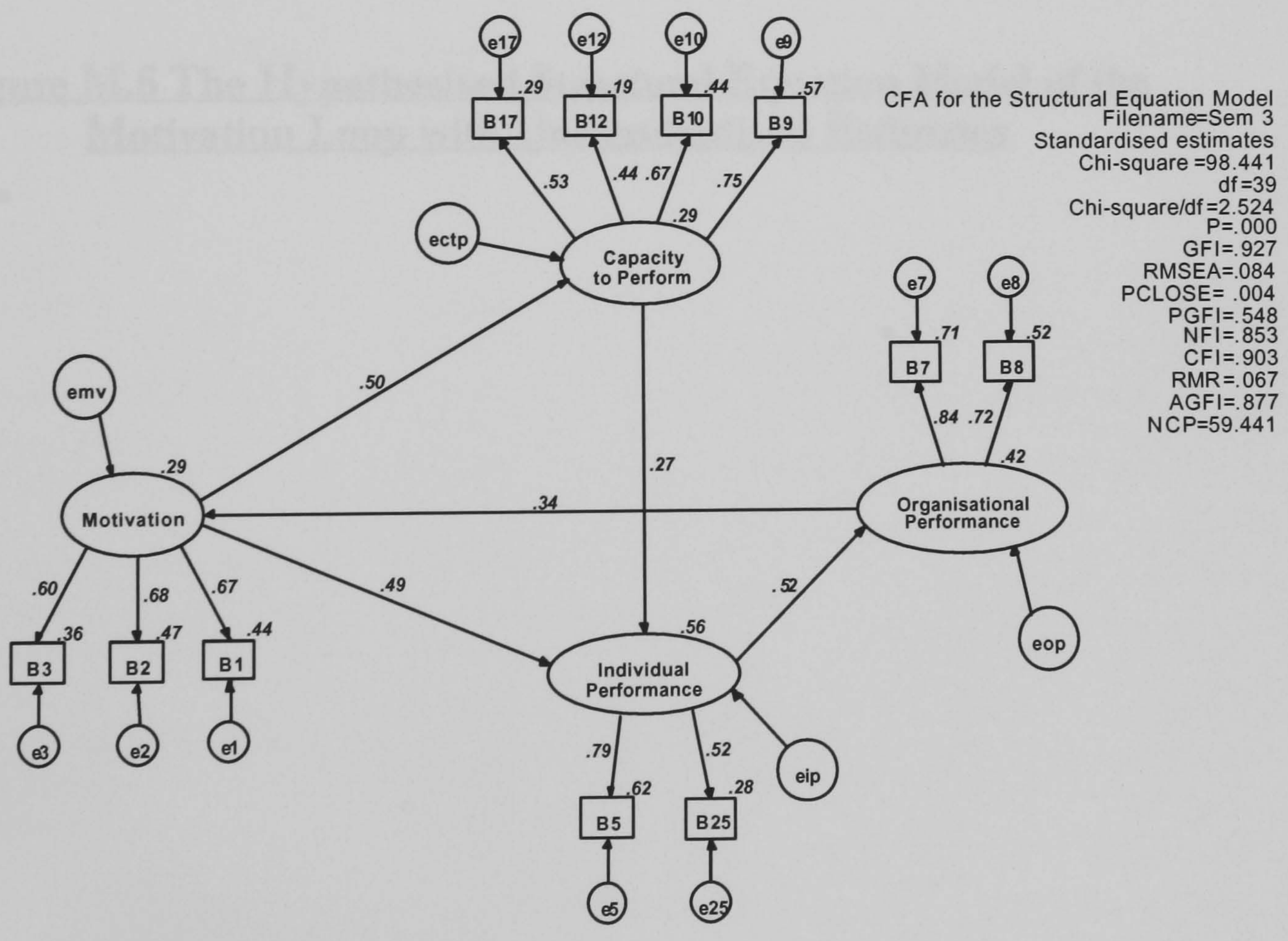


Figure M.5 The Hypothesised Structural Equation Model of the Motivation Loop with Standardised Estimates

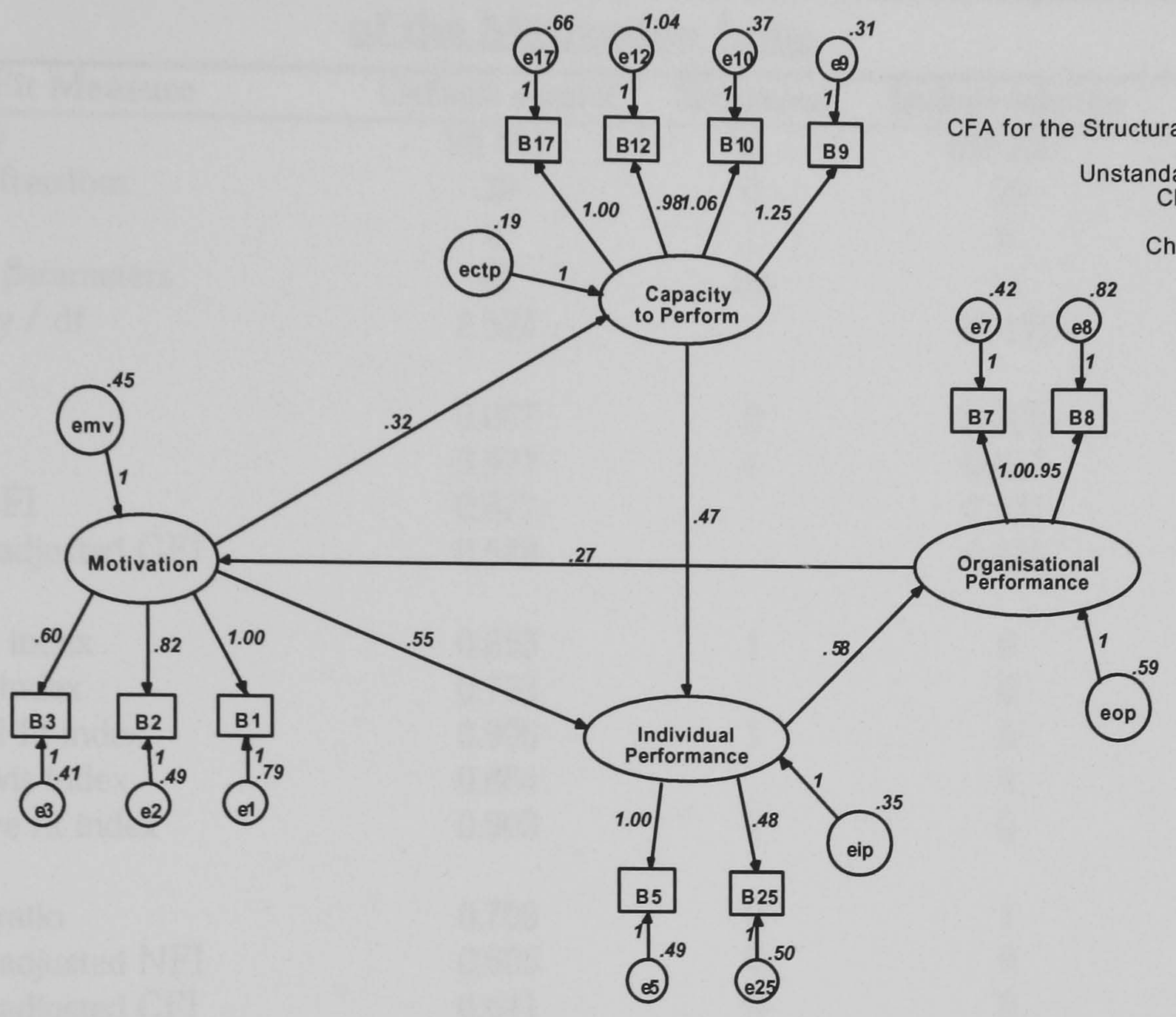


Figure M.6 The Hypothesised Structural Equation Model of the Motivation Loop with Unstandardised Estimates

Table M.13 Goodness-of-Fit Statistics for the Structural Equation Model of the Motivation Loop

Fit Measure	Default model	Saturated	Independence	Macro
Discrepancy	98.441	0	669.637	CMIN
Degrees of freedom	39	0	55	DF
P	0		0	P
Number of parameters	27	66	11	NPAR
Discrepancy / df	2.524		12.175	CMINDF
RMR	0.067	0	0.305	RMR
GFI	0.927	1	0.517	GFI
Adjusted GFI	0.877		0.421	AGFI
Parsimony-adjusted GFI	0.548		0.431	PGFI
Normed fit index	0.853	1	0	NFI
Relative fit index	0.793		0	RFI
Incremental fit index	0.906	1	0	IFI
Tucker-Lewis index	0.864		0	TLI
Comparative fit index	0.903	1	0	CFI
Parsimony ratio	0.709	0	1	PRATIO
Parsimony-adjusted NFI	0.605	0	0	PNFI
Parsimony-adjusted CFI	0.641	0	0	PCFI
Noncentrality parameter estimate	59.441	0	614.637	NCP
NCP lower bound	33.974	0	534.954	NCPLO
NCP upper bound	92.591	0	701.759	NCPHI
FMIN	0.456	0	3.1	FMIN
F0	0.275	0	2.846	F0
F0 lower bound	0.157	0	2.477	F0LO
F0 upper bound	0.429	0	3.249	F0HI
RMSEA	0.084		0.227	RMSEA
RMSEA lower bound	0.064		0.212	RMSEALO
RMSEA upper bound	0.105		0.243	RMSEAHI
P for test of close fit	0.004		0	PCLOSE
Akaike information criterion (AIC)	152.441	132	691.637	AIC
Browne-Cudeck criterion	155.617	139.765	692.931	BCC
Bayes information criterion	308.441	513.334	755.192	BIC
Consistent AIC	270.698	421.073	739.815	CAIC
Expected cross validation index	0.706	0.611	3.202	ECVI
ECVI lower bound	0.588	0.611	2.833	ECVILO
ECVI upper bound	0.859	0.611	3.605	ECVIHI
MECVI	0.72	0.647	3.208	MECVI
Hoelter .05 index	120		24	HFIVE
Hoelter .01 index	137		27	HONE

Table M.14 Modification Indexes for the Structural Equation Model of the Motivation Loop

Covariances:			M.I.	Par Change
E17	<---------->	eop	10.293	-0.179
e8	<---------->	e12	8.366	0.212
e8	<---------->	e17	7.733	-0.165
e9	<---------->	eip	7.511	-0.109
E25	<---------->	e17	6.787	0.112
e3	<---------->	e9	5.930	0.077
e25	<---------->	ectp	5.843	0.067
e10	<---------->	e12	5.512	-0.113
e10	<---------->	eip	4.950	0.090
e8	<---------->	e25	4.909	-0.114
e3	<---------->	ectp	4.807	0.056
e5	<---------->	e9	4.620	-0.088
e1	<---------->	e10	4.407	0.096
e12	<---------->	eop	4.378	0.145
e25	<---------->	e10	4.037	0.069
Regression Weights:			M.I.	Par Change
B17	<----------	B8	8.543	-0.129
B25	<----------	B17	8.451	0.152
B12	<----------	B8	7.948	0.153
B8	<----------	B12	7.304	0.165
B3	<----------	B9	5.907	0.134
B10	<----------	B25	5.675	0.133
B17	<----------	B25	5.667	0.167
B9	<----------	B5	5.661	-0.096
B25	<----------	B10	5.579	0.145
B3	<----------	B12	4.742	0.089
B10	<----------	B12	4.241	-0.084
B10	<----------	B8	4.080	0.071
B8	<----------	B17	4.051	-0.146

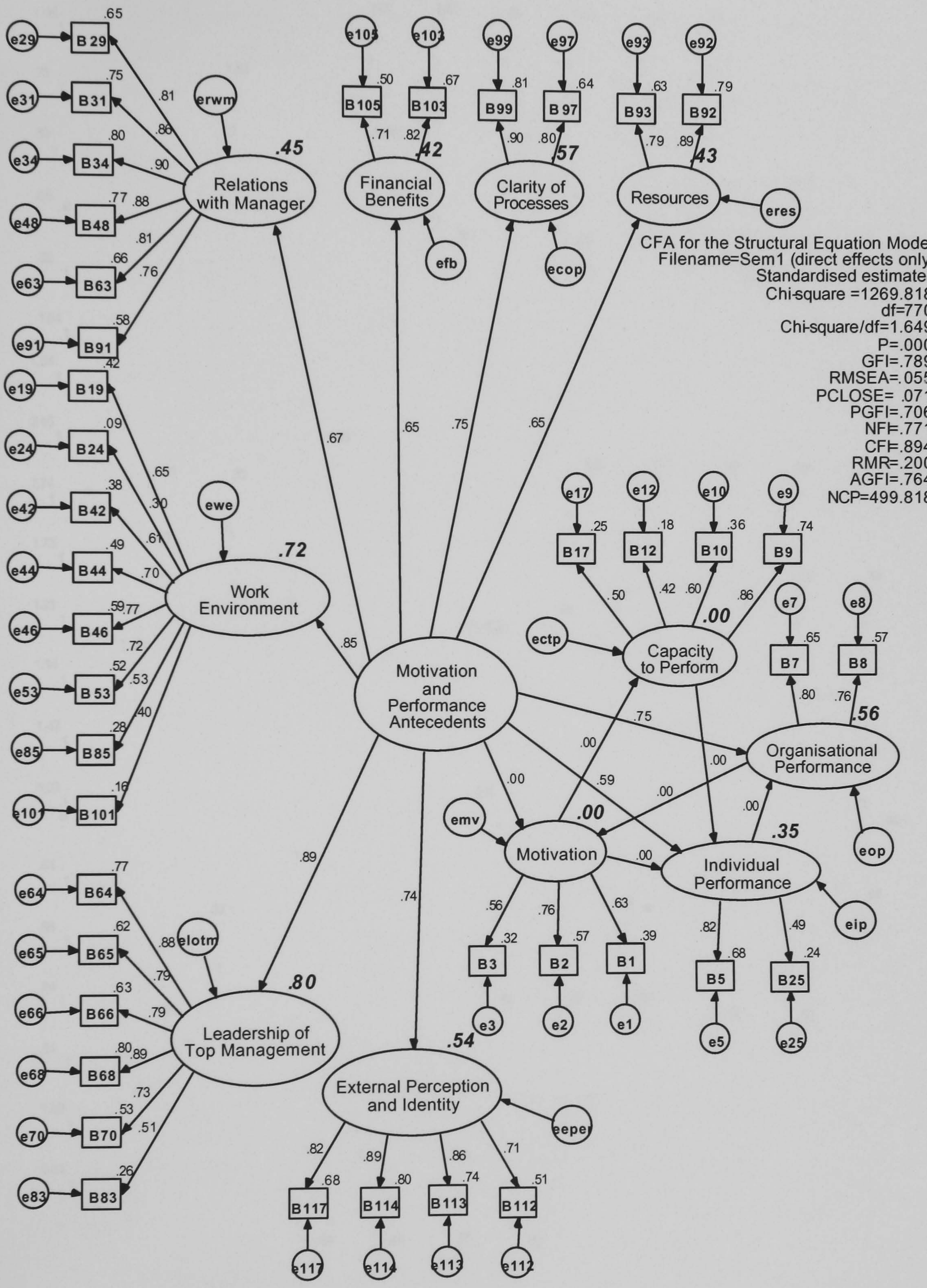


Figure M.7 The Hypothesised Structural Equation Model of Motivation and Performance with Standardised Estimates (Direct Effects Only)

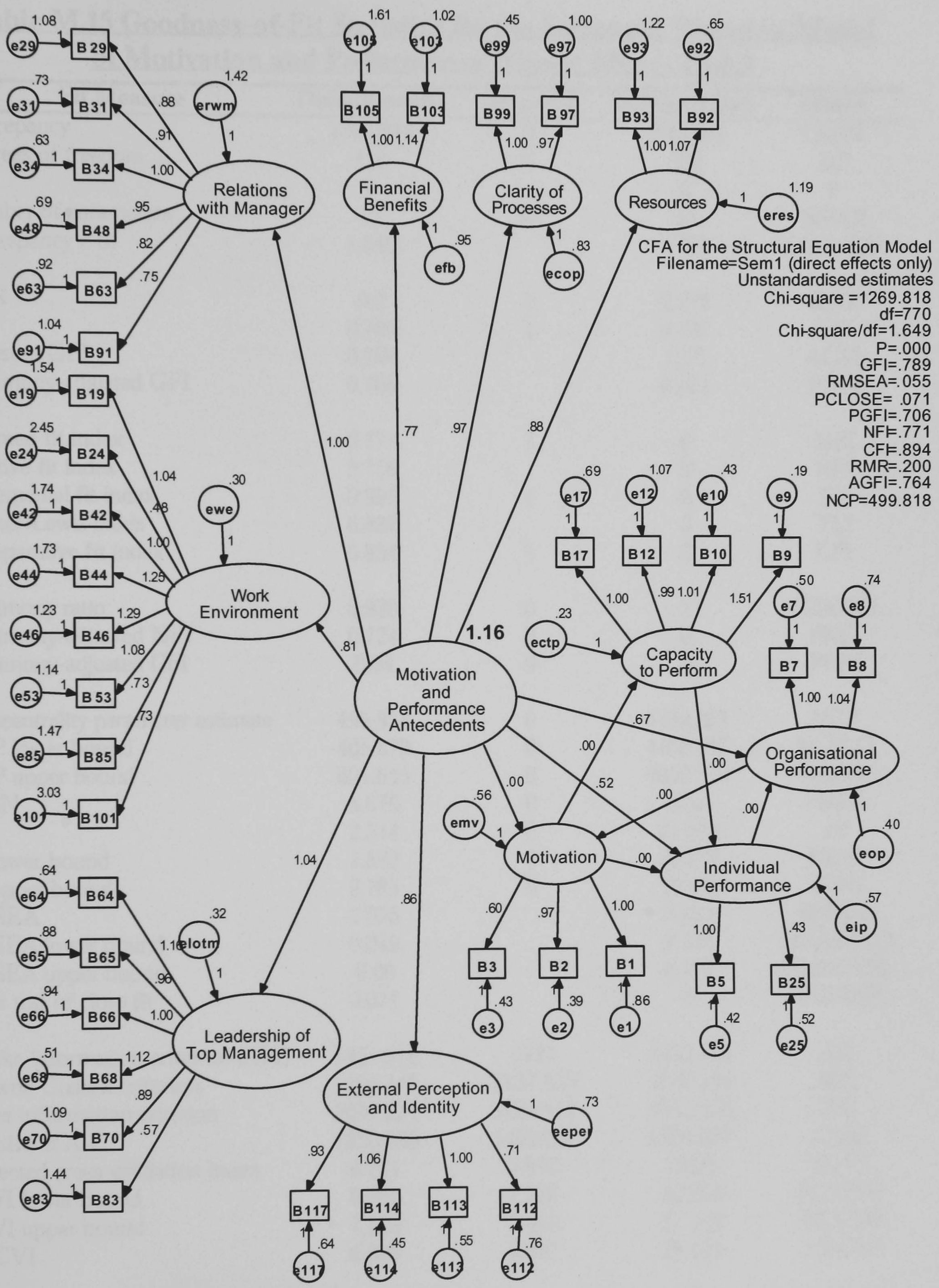


Figure M.8 The Hypothesised Structural Equation Model of Motivation and Performance with Unstandardised Estimates (Direct Effects Only)

Table M.15 Goodness-of-Fit Statistics for the Structural Equation Model of Motivation and Performance (Direct Effects Only)

Fit Measure	Default model	Saturated	Independence	Macro
Discrepancy	1269.818	0	5540.401	CMIN
Degrees of freedom	770	0	820	DF
P	0		0	P
Number of parameters	91	861	41	NPAR
Discrepancy / df	1.649		6.757	CMINDF
RMR	0.2	0	0.777	RMR
GFI	0.789	1	0.191	GFI
Adjusted GFI	0.764		0.15	AGFI
Parsimony-adjusted GFI	0.706		0.181	PGFI
Normed fit index	0.771	1	0	NFI
Relative fit index	0.756		0	RFI
Incremental fit index	0.895	1	0	IFI
Tucker-Lewis index	0.887		0	TLI
Comparative fit index	0.894	1	0	CFI
Parsimony ratio	0.939	0	1	PRATIO
Parsimony-adjusted NFI	0.724	0	0	PNFI
Parsimony-adjusted CFI	0.84	0	0	PCFI
Noncentrality parameter estimate	499.818	0	4720.401	NCP
NCP lower bound	405.879	0	4488.087	NCPLO
NCP upper bound	601.645	0	4959.325	NCPHI
FMIN	5.879	0	25.65	FMIN
F0	2.314	0	21.854	F0
F0 lower bound	1.879	0	20.778	F0LO
F0 upper bound	2.785	0	22.96	F0HI
RMSEA	0.055		0.163	RMSEA
RMSEA lower bound	0.049		0.159	RMSEALO
RMSEA upper bound	0.06		0.167	RMSEAHI
P for test of close fit	0.071		0	PCLOSE
Akaike information criterion (AIC)	1451.818	1722	5622.401	AIC
Browne-Cudeck criterion	1495.749	2137.655	5642.194	BCC
Bayes information criterion	2097.324	7829.477	5913.233	BIC
Consistent AIC	1850.389	5493.092	5801.977	CAIC
Expected cross validation index	6.721	7.972	26.03	ECVI
ECVI lower bound	6.286	7.972	24.954	ECVILO
ECVI upper bound	7.193	7.972	27.136	ECVIHI
MECVI	6.925	9.897	26.121	MECVI
Hoelter .05 index	143		35	HFIVE
Hoelter .01 index	148		36	HONE

Table M.16 Maximum Likelihood Parameter Estimates for the Structural Equation Model of Motivation and Performance (Direct Effects Only)

Regression Weights		Unstandardised Estimates	S.E.	C.R.	P	Standardised Estimates
Motivation	<-- Motivation_and_Performance_Antecedents	0				0
Organisational_Performance	<-- Motivation_and_Performance_Antecedents	0.671	0.088	7.617	0	0.751
Individual_Performance	<-- Motivation_and_Performance_Antecedents	0.515	0.081	6.343	0	0.59
Resources	<-- Motivation_and_Performance_Antecedents	0.875	0.131	6.699	0	0.653
Clarity of_Processes	<-- Motivation_and_Performance_Antecedents	0.968	0.116	8.352	0	0.753
Financial_Benefits	<-- Motivation_and_Performance_Antecedents	0.77	0.128	6.034	0	0.647
Relations_with Manager	<-- Motivation_and_Performance_Antecedents	1				0.67
External Perception_and Identity	<-- Motivation_and_Performance_Antecedents	0.86	0.105	8.179	0	0.735
Work_Environment	<-- Motivation_and_Performance_Antecedents	0.809	0.113	7.149	0	0.847
Leadership of_Top Management	<-- Motivation_and_Performance_Antecedents	1.041	0.118	8.83	0	0.892
B5	<-- Individual_Performance	1				0.824
B25	<-- Individual_Performance	0.428	0.1	4.265	0	0.486
B3	<-- Motivation	0.601	0.104	5.777	0	0.562
B1	<-- Motivation	1				0.626
B29	<-- Relations_with Manager	0.883	0.055	15.929	0	0.807
B34	<-- Relations_with Manager	1				0.897
B31	<-- Relations_with Manager	0.91	0.05	18.253	0	0.863
B48	<-- Relations_with Manager	0.953	0.05	18.967	0	0.879
B63	<-- Relations_with Manager	0.824	0.051	16.019	0	0.81
B91	<-- Relations_with Manager	0.75	0.052	14.4	0	0.764
B19	<-- Work_Environment	1.037	0.132	7.838	0	0.652
B42	<-- Work_Environment	1				0.614
B24	<-- Work_Environment	0.481	0.12	4.016	0	0.301
B44	<-- Work_Environment	1.245	0.151	8.241	0	0.697
B46	<-- Work_Environment	1.29	0.146	8.809	0	0.767
B53	<-- Work_Environment	1.079	0.128	8.438	0	0.721
B64	<-- Leadership of_Top Management	1.161	0.079	14.765	0	0.876
B66	<-- Leadership of_Top Management	1				0.792
B65	<-- Leadership of_Top Management	0.962	0.075	12.864	0	0.79
B68	<-- Leadership of_Top Management	1.124	0.074	15.122	0	0.892
B70	<-- Leadership of_Top Management	0.89	0.077	11.621	0	0.73
B83	<-- Leadership of_Top Management	0.567	0.074	7.645	0	0.511
B85	<-- Work_Environment	0.734	0.111	6.633	0	0.528
B101	<-- Work_Environment	0.733	0.142	5.173	0	0.396
B117	<-- External Perception_and Identity	0.928	0.062	15.069	0	0.825
B113	<-- External Perception_and Identity	1				0.862
B114	<-- External Perception_and Identity	1.057	0.062	17.082	0	0.894
B112	<-- External Perception_and Identity	0.707	0.059	12.077	0	0.714
B8	<-- Organisational_Performance	1.038	0.113	9.188	0	0.758
B7	<-- Organisational_Performance	1				0.804
B17	<-- Capacity_to Perform	1				0.504
B2	<-- Motivation	0.97	0.178	5.457	0	0.758
B9	<-- Capacity_to Perform	1.512	0.268	5.645	0	0.861
B10	<-- Capacity_to Perform	1.011	0.172	5.865	0	0.596
B12	<-- Capacity_to Perform	0.986	0.211	4.679	0	0.419
B92	<-- Resources	1.071	0.109	9.789	0	0.886
B93	<-- Resources	1				0.794
B97	<-- Clarity of_Processes	0.967	0.083	11.703	0	0.801
B99	<-- Clarity of_Processes	1				0.899
B103	<-- Financial_Benefits	1.137	0.153	7.441	0	0.821
B105	<-- Financial_Benefits	1				0.71
Individual_Performance	<-- Capacity_to Perform	0				0
Individual_Performance	<-- Motivation	0				0
Capacity_to Perform	<-- Motivation	0				0
Organisational_Performance	<-- Individual_Performance	0				0
Motivation	<-- Organisational_Performance	0				0

Table M .16 ***(Continued)***

Variances		**Unstandardised Estimates**	**S.E.**	**C.R.**	**P**
	Motivation_and_Performance_Anteced ents	1.157	0.236	4.901	0
	eip	0.575	0.194	2.955	0.003
	eop	0.404	0.091	4.456	0
	emv	0.556	0.143	3.884	0
	ectp	0.234	0.069	3.401	0.001
	erwm	1.423	0.188	7.569	0
	elotm	0.322	0.072	4.5	0
	eres	1.191	0.208	5.715	0
	ewe	0.298	0.078	3.805	0
	ecop	0.826	0.152	5.43	0
	efb	0.95	0.206	4.603	0
	eeper	0.728	0.11	6.618	0
	e7	0.504	0.095	5.318	0
	e8	0.738	0.113	6.54	0
	e25	0.523	0.061	8.593	0
	e5	0.417	0.191	2.183	0.029
	e3	0.435	0.054	8.083	0
	e1	0.863	0.125	6.897	0
	e2	0.389	0.096	4.063	0
	e10	0.432	0.054	8.07	0
	e17	0.686	0.075	9.164	0
	e12	1.07	0.11	9.707	0
	e29	1.076	0.117	9.18	0
	e34	0.63	0.082	7.707	0
	e31	0.729	0.086	8.478	0
	e48	0.691	0.085	8.173	0
	e63	0.92	0.1	9.159	0
	e91	1.038	0.109	9.489	0
	e19	1.536	0.165	9.315	0
	e42	1.738	0.183	9.508	0
	e24	2.447	0.239	10.248	0
	e44	1.729	0.192	9.007	0
	e46	1.229	0.148	8.289	0
	e53	1.137	0.129	8.808	0
	e64	0.641	0.081	7.904	0
	e66	0.938	0.103	9.145	0
	e65	0.876	0.096	9.157	0
	e68	0.511	0.068	7.466	0
	e70	1.094	0.115	9.55	0
	e83	1.436	0.142	10.134	0
	e85	1.467	0.149	9.83	0
	e101	3.034	0.3	10.122	0
	e117	0.642	0.077	8.285	0
	e113	0.545	0.073	7.462	0
	e114	0.445	0.069	6.421	0
	e112	0.763	0.081	9.388	0
	e105	1.606	0.245	6.562	0
	e103	1.02	0.264	3.859	0
	e99	0.451	0.131	3.433	0.001
	e97	1	0.151	6.633	0
	e93	1.22	0.212	5.764	0
	e92	0.649	0.211	3.07	0.002
	e9	0.187	0.075	2.502	0.012

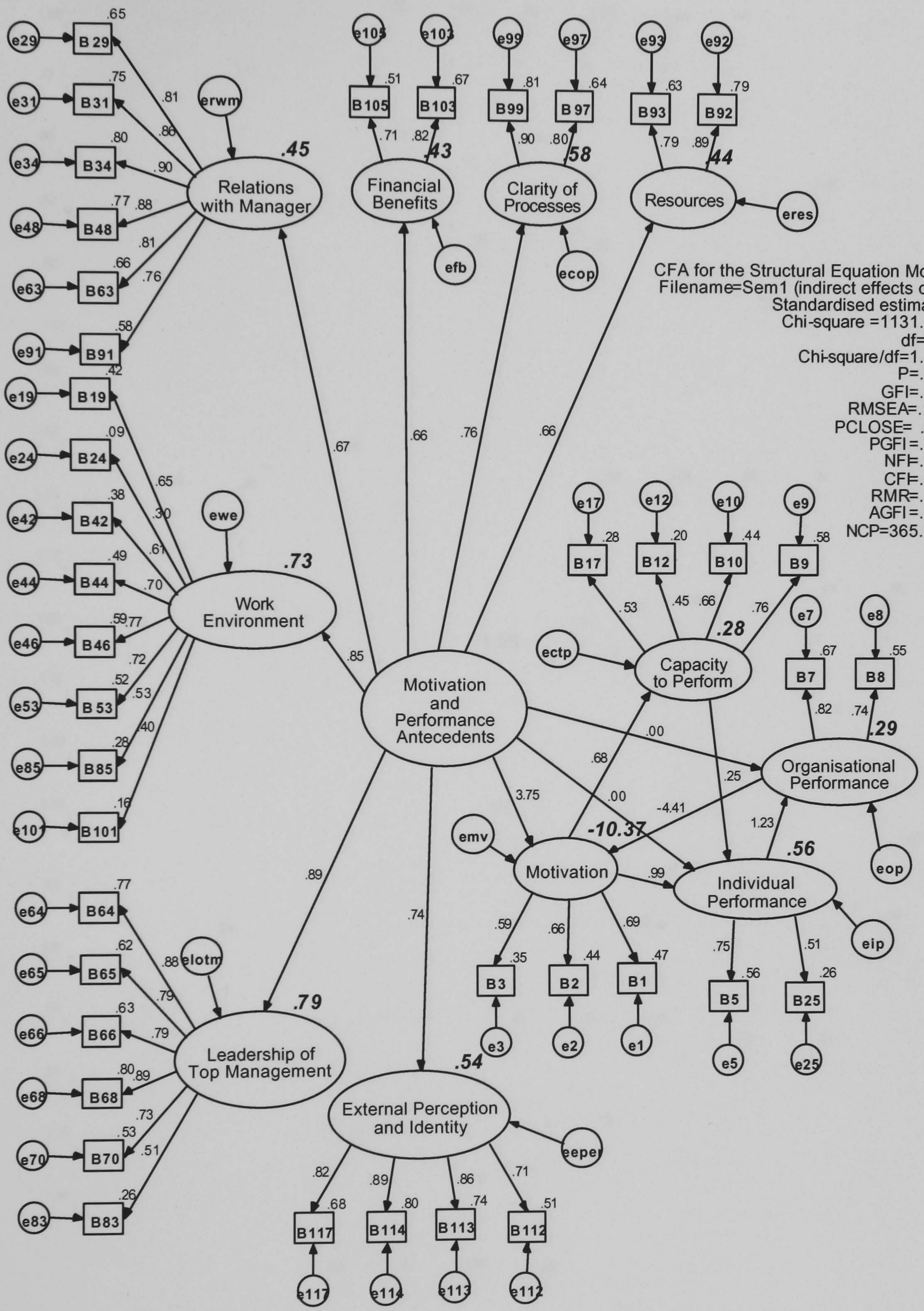


Figure M.9 The Hypothesised Structural Equation Model of Motivation and Performance with Standardised Estimates (Indirect Effects Only)

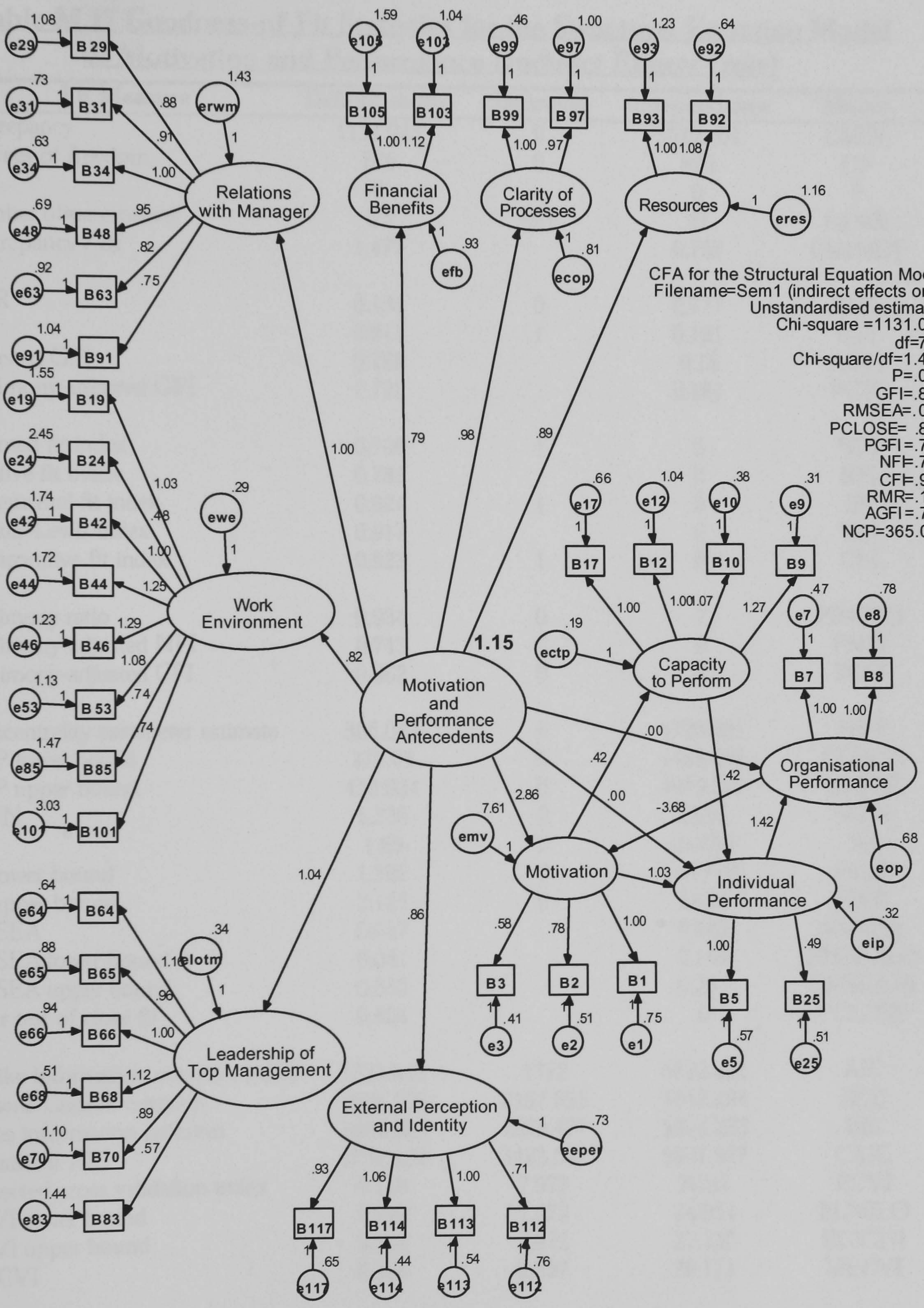


Figure M.10 The Hypothesised Structural Equation Model of Motivation and Performance with Unstandardised Estimates (Indirect Effects Only)

Table M.17 Goodness-of-Fit Statistics for the Structural Equation Model of Motivation and Performance (Indirect Effects Only)

Fit Measure	Default model	Saturated	Independence	Macro
Discrepancy	1131.043	0	5540.401	CMIN
Degrees of freedom	766	0	820	DF
P	0		0	P
Number of parameters	95	861	41	NPAR
Discrepancy / df	1.477		6.757	CMINDF
RMR	0.134	0	0.777	RMR
GFI	0.811	1	0.191	GFI
Adjusted GFI	0.788		0.15	AGFI
Parsimony-adjusted GFI	0.722		0.181	PGFI
Normed fit index	0.796	1	0	NFI
Relative fit index	0.781		0	RFI
Incremental fit index	0.924	1	0	IFI
Tucker-Lewis index	0.917		0	TLI
Comparative fit index	0.923	1	0	CFI
Parsimony ratio	0.934	0	1	PRATIO
Parsimony-adjusted NFI	0.743	0	0	PNFI
Parsimony-adjusted CFI	0.862	0	0	PCFI
Noncentrality parameter estimate	365.043	0	4720.401	NCP
NCP lower bound	279.03	0	4488.087	NCPLO
NCP upper bound	459.034	0	4959.325	NCPHI
FMIN	5.236	0	25.65	FMIN
F0	1.69	0	21.854	F0
F0 lower bound	1.292	0	20.778	F0LO
F0 upper bound	2.125	0	22.96	F0HI
RMSEA	0.047		0.163	RMSEA
RMSEA lower bound	0.041		0.159	RMSEALO
RMSEA upper bound	0.053		0.167	RMSEAHI
P for test of close fit	0.804		0	PCLOSE
Akaike information criterion (AIC)	1321.043	1722	5622.401	AIC
Browne-Cudeck criterion	1366.906	2137.655	5642.194	BCC
Bayes information criterion	1994.923	7829.477	5913.233	BIC
Consistent AIC	1737.134	5493.092	5801.977	CAIC
Expected cross validation index	6.116	7.972	26.03	ECVI
ECVI lower bound	5.718	7.972	24.954	ECVILO
ECVI upper bound	6.551	7.972	27.136	ECVIHI
MECVI	6.328	9.897	26.121	MECVI
Hoelter .05 index	159		35	HFIVE
Hoelter .01 index	165		36	HONE

Table M.18 Maximum Likelihood Parameter Estimates for the Structural Equation Model of Motivation and Performance (Inirect Effects Only)

Regression Weights		Unstandardised Estimates	S.E.	C.R.	P	Standardised Estimates
Motivation	<-- Motivation_and_Performance_Antecedents	2.858	1.908	1.498	0.134	3.745
Organisational_Performance	<-- Motivation_and_Performance_Antecedents	0				0
Individual_Performance	<-- Motivation_and_Performance_Antecedents	0				0
Resources	<-- Motivation_and_Performance_Antecedents	0.889	0.132	6.749	0	0.663
Clarity of_Processes	<-- Motivation_and_Performance_Antecedents	0.977	0.117	8.349	0	0.758
Financial_Benefits	<-- Motivation_and_Performance_Antecedents	0.791	0.129	6.141	0	0.659
Relations_with Manager	<-- Motivation_and_Performance_Antecedents	1				0.667
External Perception_and Identity	<-- Motivation_and_Performance_Antecedents	0.863	0.106	8.142	0	0.735
Work_Environment	<-- Motivation_and_Performance_Antecedents	0.816	0.114	7.14	0	0.853
Leadership of_Top Management	<-- Motivation_and_Performance_Antecedents	1.039	0.119	8.761	0	0.887
B5	<-- Individual_Performance	1				0.747
B25	<-- Individual_Performance	0.493	0.078	6.334	0	0.507
B3	<-- Motivation	0.577	0.084	6.856	0	0.592
B1	<-- Motivation	1				0.686
B29	<-- Relations_with Manager	0.883	0.055	15.927	0	0.807
B34	<-- Relations_with Manager	1				0.897
B31	<-- Relations_with Manager	0.91	0.05	18.253	0	0.863
B48	<-- Relations_with Manager	0.953	0.05	18.967	0	0.879
B63	<-- Relations_with Manager	0.824	0.051	16.024	0	0.81
B91	<-- Relations_with Manager	0.75	0.052	14.401	0	0.764
B19	<-- Work_Environment	1.033	0.132	7.805	0	0.649
B42	<-- Work_Environment	1				0.614
B24	<-- Work_Environment	0.482	0.12	4.02	0	0.301
B44	<-- Work_Environment	1.25	0.152	8.247	0	0.699
B46	<-- Work_Environment	1.29	0.147	8.792	0	0.766
B53	<-- Work_Environment	1.082	0.128	8.44	0	0.722
B64	<-- Leadership of_Top Management	1.161	0.079	14.781	0	0.877
B66	<-- Leadership of_Top Management	1				0.792
B65	<-- Leadership of_Top Management	0.961	0.075	12.863	0	0.79
B68	<-- Leadership of_Top Management	1.124	0.074	15.129	0	0.892
B70	<-- Leadership of_Top Management	0.888	0.077	11.589	0	0.728
B83	<-- Leadership of_Top Management	0.566	0.074	7.642	0	0.51
B85	<-- Work_Environment	0.736	0.111	6.638	0	0.529
B101	<-- Work_Environment	0.738	0.142	5.198	0	0.399
B117	<-- External Perception_and Identity	0.926	0.062	15.046	0	0.824
B113	<-- External Perception_and Identity	1				0.863
B114	<-- External Perception_and Identity	1.058	0.062	17.104	0	0.894
B112	<-- External Perception_and Identity	0.707	0.059	12.083	0	0.714
B8	<-- Organisational_Performance	0.998	0.102	9.805	0	0.742
B7	<-- Organisational_Performance	1				0.819
B17	<-- Capacity_to Perform	1				0.531
B2	<-- Motivation	0.775	0.105	7.415	0	0.664
B9	<-- Capacity_to Perform	1.267	0.199	6.372	0	0.76
B10	<-- Capacity_to Perform	1.067	0.173	6.167	0	0.663
B12	<-- Capacity_to Perform	0.997	0.205	4.856	0	0.446
B92	<-- Resources	1.075	0.108	9.913	0	0.888
B93	<-- Resources	1				0.792
B97	<-- Clarity of_Processes	0.969	0.082	11.768	0	0.802
B99	<-- Clarity of_Processes	1				0.898
B103	<-- Financial_Benefits	1.125	0.148	7.579	0	0.817
B105	<-- Financial_Benefits	1				0.714
Individual_Performance	<-- Capacity_to Perform	0.417	0.254	1.641	0.101	0.249
Individual_Performance	<-- Motivation	1.035	0.176	5.883	0	0.993
Capacity_to Perform	<-- Motivation	0.424	0.089	4.763	0	0.682
Organisational_Performance	<-- Individual_Performance	1.415	0.182	7.775	0	1.23
Motivation	<-- Organisational_Performance	-3.678	2.778	-1.324	0.186	-4.41

Table M .18 ***(Continued)***

		Unstandardised Estimates	S.E.	C.R.	P
Variances					
	Motivation_and_Performance_Antecedents	1.149	0.236	4.875	0
	Eip	0.32	0.136	2.354	0.019
	Eop	0.679	0.214	3.174	0.002
	Emv	7.609	9.686	0.786	0.432
	Ectp	0.185	0.055	3.351	0.001
	Erwm	1.432	0.189	7.566	0
	Elotm	0.336	0.074	4.568	0
	Eres	1.159	0.203	5.7	0
	Ewe	0.286	0.077	3.741	0
	Ecop	0.809	0.15	5.384	0
	Efb	0.934	0.204	4.586	0
	Eeper	0.728	0.11	6.605	0
	e7	0.472	0.087	5.39	0
	e8	0.782	0.107	7.337	0
	e25	0.509	0.055	9.343	0
	e5	0.575	0.09	6.414	0
	e3	0.413	0.048	8.599	0
	e1	0.752	0.102	7.374	0
	e2	0.511	0.066	7.732	0
	e10	0.377	0.05	7.592	0
	e17	0.661	0.073	9.058	0
	e12	1.04	0.109	9.562	0
	e29	1.076	0.117	9.18	0
	e34	0.629	0.082	7.703	0
	e31	0.73	0.086	8.478	0
	e48	0.691	0.085	8.172	0
	e63	0.92	0.1	9.157	0
	e91	1.038	0.109	9.488	0
	e19	1.546	0.166	9.338	0
	e42	1.741	0.183	9.518	0
	e24	2.446	0.239	10.249	0
	e44	1.722	0.191	9.003	0
	e46	1.234	0.148	8.314	0
	e53	1.133	0.129	8.806	0
	e64	0.639	0.081	7.874	0
	e66	0.937	0.103	9.136	0
	e65	0.876	0.096	9.151	0
	e68	0.51	0.069	7.443	0
	e70	1.099	0.115	9.554	0
	e83	1.436	0.142	10.133	0
	e85	1.466	0.149	9.831	0
	e101	3.027	0.299	10.12	0
	e117	0.645	0.078	8.302	0
	e113	0.545	0.073	7.456	0
	e114	0.443	0.069	6.4	0
	e112	0.763	0.081	9.388	0
	e105	1.589	0.242	6.568	0
	e103	1.042	0.258	4.044	0
	e99	0.456	0.13	3.497	0
	e97	0.996	0.15	6.643	0
	e93	1.229	0.209	5.889	0
	e92	0.638	0.208	3.066	0.002
	e9	0.305	0.054	5.69	0